

THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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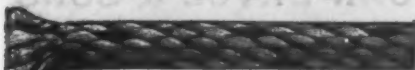
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THE IRON AGE

THURSDAY, NOVEMBER 24, 1904.

The National Steel Foundry Company.

For several months the new plant of the National Steel Foundry Company, at New Haven, Conn., has been in successful operation, proving, as was expected, that there is a large demand for open hearth steel castings from the manufacturers of New England. Sales, however, are not confined to this territory, as many customers have been found in other parts of the country, including the United States Government, which has given the company contracts aggregating a large tonnage. The foundry is adjacent to the plant of the National Wire Corporation and has a desirable location on tidewater, with excellent railroad facilities, and while within the borders of the New England field is also close to New York. In designing the plant it was necessary to make provision for a great diversity in sizes of product, these to range

contains the cleaning department, annealing pit, casting pit and storage for castings. This wing is served by two Niles electric cranes, one of 30 tons capacity covering the cleaning department and one of 40 tons capacity the end containing the furnaces. There is a clear height under all the cranes of 22 feet.

The half-tone illustrations, Figs. 1, 2 and 3, give a general idea of the well lighted condition of the building, the walls being very largely of glass. Ample measures have also been taken for securing good ventilation. In the middle of the central bay are the core ovens, with the core room adjacent to one end, while beyond the core room is the erecting shop and flask department, and at the other end of the central bay is the pattern storage and office. There is also in the office section a chemical laboratory and small storeroom.

The foundry has two 30-ton acid open hearth fur-



Fig. 1.—View on the Charging Platform, National Steel Foundry Company.

from ingots of 60,000 pounds weight down to small machinery castings. During the months of actual commercial operation the plant has shown its ability to successfully handle such a varying class of work.

In general dimensions the main building is 408 feet long by 164 feet wide, with a shallow L near one end 36 feet deep by 60 feet long, in which are located the open hearth furnaces and the charging platform, shown in Fig. 1. The general arrangement of the several departments within the buildings is best shown in the plan, Fig. 4. The gas producers, four in number, are in a separate building in close proximity to the open hearth plant. This building is 27 feet wide by 70 feet long and has a 12 x 18 foot extension near one end. The monitor roof which covers the central bay of the main building is 38 feet wide, and has a maximum height of 57 feet from the floor. The wings adjoining the central portion on either side are 63 feet wide. One of these wings accommodates the molding department and is served by two Niles electric cranes of 30 tons capacity each. The other wing

naces of the usual type, which, with the gas producers, were installed by James A. Herrick, Philadelphia. Provision is made for a third furnace to be installed at some future time when the demand requires it. In front of the furnaces there is a casting pit 12 feet in diameter and 18 feet deep. There are three double core drying ovens, each 18 x 36 feet, and each heated by fire places on each side. Two of the ovens are divided by partition walls to make two ovens of each, so that there is a total of five. The annealing pit is located near the end of the casting department, at about the middle of the long way of the building, and is 14 feet 6 inches wide by 32 feet 6 inches long.

The cleaning department is excellently equipped with modern tools for doing the finishing work on castings prior to their shipment. The chipping tools are operated by compressed air, obtained from a compressor built by the Blaisdell Machinery Company, Bradford, Pa. The machine tools are electrically driven, and include two planers from the Whitcomb Mfg. Company, Worcester;

an open side planer from the American Foundry & Machine Company; two shapers from Robert Wetherill & Co., Chester, Pa.; two cutting off machines from the

of various heats are tested, there is a lathe from the Hendey Machine Company, Torrington, Conn., and a 100,000-pound Tinius Olson testing machine.



Fig. 2.—View in the Molding Department.



Fig. 3.—View in the Finishing Department.

Espen-Lucas Machine Works, Philadelphia, and another from the Higley Machine Company, New York; grinders from the Safety Emery Wheel Company, Springfield, Ohio, and an upright drill from the Aurora Tool Works, Aurora, Ind. In the physical laboratory, where specimens

Facilities for handling material within the building are very complete, as has been noted. Equally convenient provisions are made for shipping material. Two spur tracks enter the building at one end, one in each wing, these extending nearly to the center of the building, to

the tracks which serve the core ovens, and connecting with the main line of the railroad.

The Prospect for Tariff Concessions from Cuba.

WASHINGTON, D. C., November 22, 1904.—In view of the absolute failure of the Cuban reciprocity treaty to increase our exports to the island, and the demands of American manufacturers and exporters for further concessions to offset the very large increase in our imports of Cuban products, the Administration is watching with great interest the negotiations recently set on foot looking to the conclusion of a commercial treaty between Spain and the Island of Cuba. While this convention is not specifically denominated a reciprocity treaty, nevertheless, judging from advices received here, the Governments of both Cuba and Spain are preparing to incorporate therein certain tariff concessions of the general character to be found in the usual reciprocal trade agree-

ments six times greater than that made in Spain for Cuban produce, it is obvious that the trade relations of the two countries are far from satisfactory. Under such conditions Cuba naturally seeks from Spain reduced rates of duty on her principal products and is prepared to grant concessions in return.

Effect on American Trade.

The phase of the question which is arousing the chief anxiety here relates to the concessions that Cuba may decide to grant to Spain in exchange for lower rates of duty on Cuban products. Under the terms of Article VIII of our reciprocity treaty with Cuba we are guaranteed not only certain reductions in the rates of the general Cuban tariff on American products, but the pledge is given that such concessions would be granted to the United States in excess of any that may be conceded to any other country. This provision is as follows:

The rates of duty herein granted by the United States to the Republic of Cuba are and shall continue during the term of this convention preferential in respect to all like imports from other countries, and in return for said preferential rates of duty granted to the Republic of Cuba by the United States it is

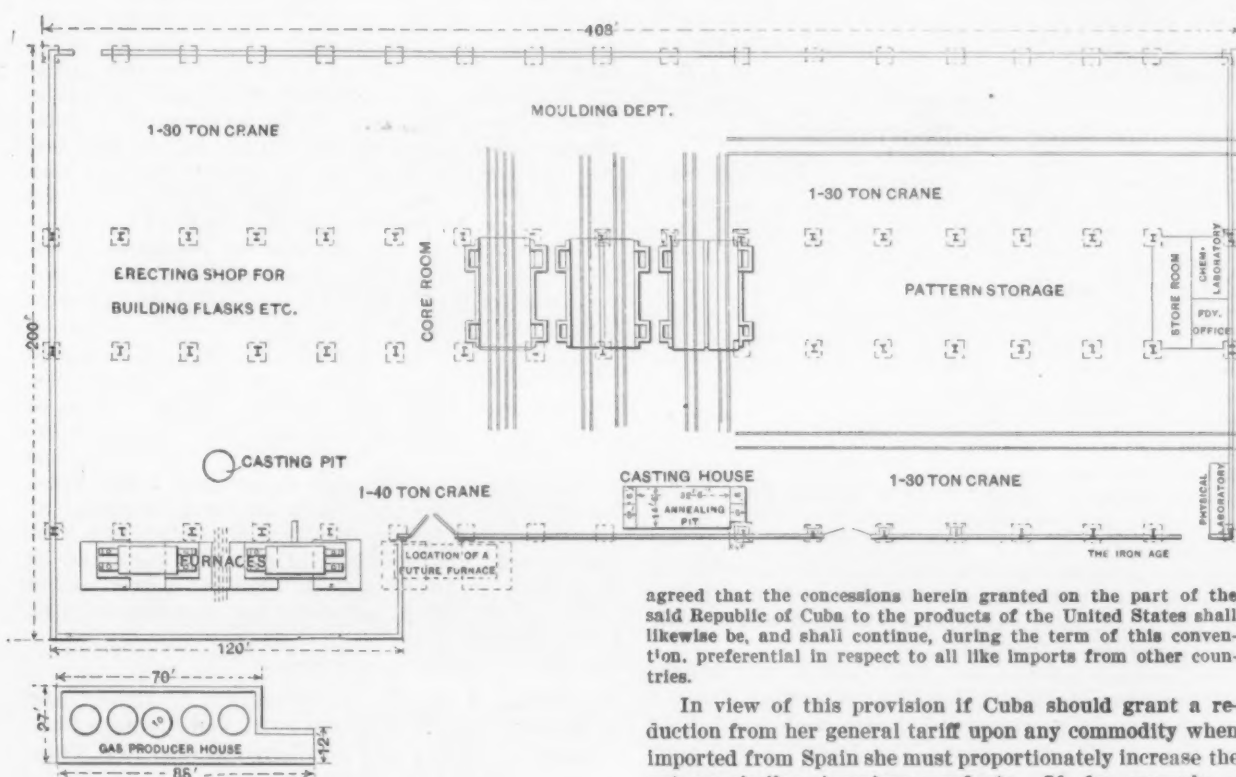


Fig. 4.—Plan of the National Steel Foundry Company's New Plant.

ment. Because of the close commercial relations between the island and Spain in times past and the influence in Cuba of Spanish importers and merchants the State Department officials are observing these negotiations with some anxiety lest mutual concessions be granted calculated to still further reduce the value of the provisions of our reciprocity treaty with Cuba.

Reductions Asked in Spanish Tariff.

In this connection a brief but highly significant report has been received at the State Department from United States Consul General Lay of Barcelona, Spain, who states that petitions have been received from Cuban planters and producers setting forth the necessity of obtaining from Spain reductions in the tariff in favor of Cuban products. The petitions explain that important concessions are necessary to offset Spanish shipments of oil, wines, cotton textiles, shoes and many other goods imported annually into Cuba, which during the last fiscal year aggregated a value of \$10,023,312, or 18 per cent. of the imports from all countries. During the fiscal year 1903 Spain imported only \$1,681,624 worth of Cuban produce, or 2 per cent. of the total exports from Cuba. As Cuba is now making a market for Spanish

goods six times greater than that made in Spain for Cuban produce, it is obvious that the trade relations of the two countries are far from satisfactory. Under such conditions Cuba naturally seeks from Spain reduced rates of duty on her principal products and is prepared to grant concessions in return.

agreed that the concessions herein granted on the part of the said Republic of Cuba to the products of the United States shall likewise be, and shall continue, during the term of this convention, preferential in respect to all like imports from other countries.

In view of this provision if Cuba should grant a reduction from her general tariff upon any commodity when imported from Spain she must proportionately increase the cut on similar American products. If, for example, a reduction of 20 per cent. is conceded to Spain on machinery or other manufactures of iron and steel, the 25 per cent. reduction on similar American products provided for by Schedule B of the Cuban-American treaty must be increased to 45 per cent. Should a general treaty be negotiated with Spain providing reductions averaging 20 per cent. it would operate to give American merchandise the benefit of concessions ranging from 45 to 60 per cent.

Possible Abrogation of Treaty.

Whether the Cuban Government realizes that this would be the effect of such a reciprocity treaty is not known here, for the State Department has no assurances on the subject. Inasmuch as about 40 per cent. of Cuba's imports are drawn from the United States, it goes without saying that to increase the reductions, as indicated, would materially curtail the customs receipts of the island, and would make it necessary to seek other sources of revenue. The results that would be certain to follow any reciprocity treaty between Cuba and Spain depriving the United States of its full measure of preferential treatment may be gathered from the provisions of a very important article in the Cuban-American treaty the tenor of which is not generally understood. It is as follows:

It is hereby understood and agreed that in case of changes in the tariff of either country which deprive the other of the

advantage which is represented by the percentages herein agreed upon, on the actual rates of the tariffs now in force, the country so deprived of this protection reserves the right to terminate its obligations under this convention after six months' notice to the other of its intention to arrest the operations thereof. And it is further understood and agreed that if, at any time during the term of this convention, after the expiration of the first year, the protection herein granted to the products and manufactures of the United States on the basis of the actual rates of the tariff of the Republic of Cuba now in force should appear to the Government of said Republic to be excessive in view of a new tariff law that may be adopted by it after this convention becomes operative, then the said Republic of Cuba may reopen negotiations with a view to securing such modifications as may appear proper to both contracting parties.

A very prompt and effective method of abrogating our reciprocity treaty is thus provided, and would undoubtedly be called into requisition should Cuba make a general treaty with Spain disadvantageous to American commerce. It is the best opinion here that should Cuba negotiate a reciprocity convention with Spain pressure would be brought to bear by the United States to limit concessions in the Cuban tariff on Spanish goods to a few items, and that under the provisions of Article VIII Cuba would be induced to make such additional concessions, without receiving any further equivalents, as would guarantee to American producers a larger share of the Cuban market than has been obtained under the existing reciprocity treaty.

W. L. G.

New Publications.

The Story of American Coals.—Second edition. By William Jasper Nicolls, M. Am. Soc. C. E., author of "The Railway Builder," "Coal Catechism," &c. Publishers, J. B. Lippincott Company, Philadelphia and London; pages, 396.

Each year the subject of coal is coming more vitally home to the American people. The manufacturer, the merchant, the ship owner, the railroad, the householder, each feels the importance of the great mineral, and yet very few persons have more than perfunctory knowledge of the subject beyond that contained in the important item of expense as indicated by the bill of the coal dealer. Mr. Nicolls has prepared a work essentially fitted to fill the need of him who would acquire more knowledge of coal. The volume now appears in its second edition, after an interval that has seen enormous progress in America's production as well as great changes in methods and conditions of securing the mineral from the earth and distributing it to consumers.

"The Story of American Coals" is a story briefly told, yet sufficiently in detail to give a somewhat intimate knowledge of the subject. It treats coal under four headings—origin, development, transportation and consumption. The first section is exceedingly interesting, the theory of origin and the geology being carried on to geography and classification. But the latter sections are more vitally important to the reader. The various types of mine are taken up one after another, through the various stages from prospecting to development and production. Under this head the author makes suggestive comment, for example, describing the facility with which mines may be opened in some parts of America, observing that "this facility of development resulting in multitudinous small openings by men of no experience or capital is one of the fruitful sources of the extraordinary competition which has produced the inevitable result—an enormous tonnage, far exceeding in quantity any possible demand that may be made upon it, and at prices often below the actual cost of mining. To this evil may also be ascribed the large amount of inferior coal sent to the market—coal from the outcrop and coal from all parts of the seams, black bone, sulphur, binding slate, and other impurities, carelessly thrown into the cars and sent to tidewater at a price—at any price—to get rid of it. And, unfortunately, this price being fixed by the inferior coals, the better grades mined by experienced miners and properly 'prepared' before leaving the mines, at considerable cost, must be sacrificed to meet the market."

The reader will appreciate the existence of impurities in the coal bin, though few are educated to the point of

believing that coal is ever sold at the pit mouth or anywhere else at a loss. The trouble is in transportation, as the author points out in telling of "the different conditions existing in Europe and in this country in the opening of a mine, conditions so preponderately in our favor that a comparison can scarcely be made; conditions that would give us the 'markets of the world'—so dear to the heart of the free-trader—for our surplus coal did not the great compensating law of nature fix our mines in the interior mountains instead of along our seaboard, with an intervening distance of several hundred miles, for which the American operator must pay tribute to the transporting railroad." But he goes on to say: "As the center of population, and with it the consumption of coal, moves slowly toward the interior, this matter will be adjusted with increased benefit to the operator, and the corresponding barrier of distance will intervene against transportation of foreign coals from the seaboard to our interior cities." Speaking of the difficulties of shaft mining in the United States, to overcome which involves an outlay of money far exceeding the capacity of a single coal operator, and which may be expected to occur when we can no longer work our coal by drifts, Mr. Nicolls says: "When that period arrives it will require all the sagacity and perseverance of the operators, together with the inventive power and skill of the American engineers, to overcome them. The cost of producing coal will certainly be increased to a point closely approximating the English article, and the question of protecting our home markets will be more than ever a subject of serious consideration, for all the comparisons made between English and American coals must be calculated f.o.b. at tidewater or the Atlantic seaboard, which comparison, even with our present cheap cost of mining, is in favor of the foreign coal by more than the entire duty."

The subject of transportation is taken up in a good deal of detail, and so is the question of consumption, which includes simple analyses of the general classes of coal and their relative merits for various purposes. Coke and by-products have their place in the volume, and lastly, and very important, is an excellent index, which makes of the work a pretty good volume of reference. As said before, coal is a great subject, to handle which thoroughly would mean hundreds of volumes. The author of "The Story of American Coals" has taken as a part of his text *multum in parvo*, and has succeeded in living up to his purpose.

The Metric Fallacy. By Frederick A. Halsey and Samuel S. Dale. Published by D. Van Nostrand Company, 23 Murray and 27 Warren streets, New York. Pages, 231. Cloth. Price, \$1.

This volume consists of two articles in opposition to the metric system. The first article, by Mr. Halsey, reproduces much of the paper presented to the American Society of Mechanical Engineers at its meeting in December, 1902. The points raised in the discussion have been rewritten and inserted in their appropriate place. New chapters have been added on "The Reasons for the Failure of Compulsory Laws," "Scientific and Industrial Measurements," "Scientific and Industrial Difficulties," "The Government Will Pay the Cost," "The Confusion of Our Weights and Measures," "The Complications Due to a Mixture of Units," "The Inaccuracy of the Meter," "The Abandoned Portions of the Metric System" and "The Object of the Bill."

The second article, by Mr. Dale, treats of "The Metric Failure in the Textile Industry." Mr. Dale enters very thoroughly into the discussion of what he terms the Continental chaos of textile weights and measures. He presents a very interesting array of the difficulties which have been found in Europe in endeavoring to establish the metric system as the standard system of weights and measures. This work constitutes a formidable arraignment of the metric system, and the facts and arguments presented will be found most difficult to be overcome by those who are seeking to establish the metric system in this country.

A New Heavy Bliss Shear.

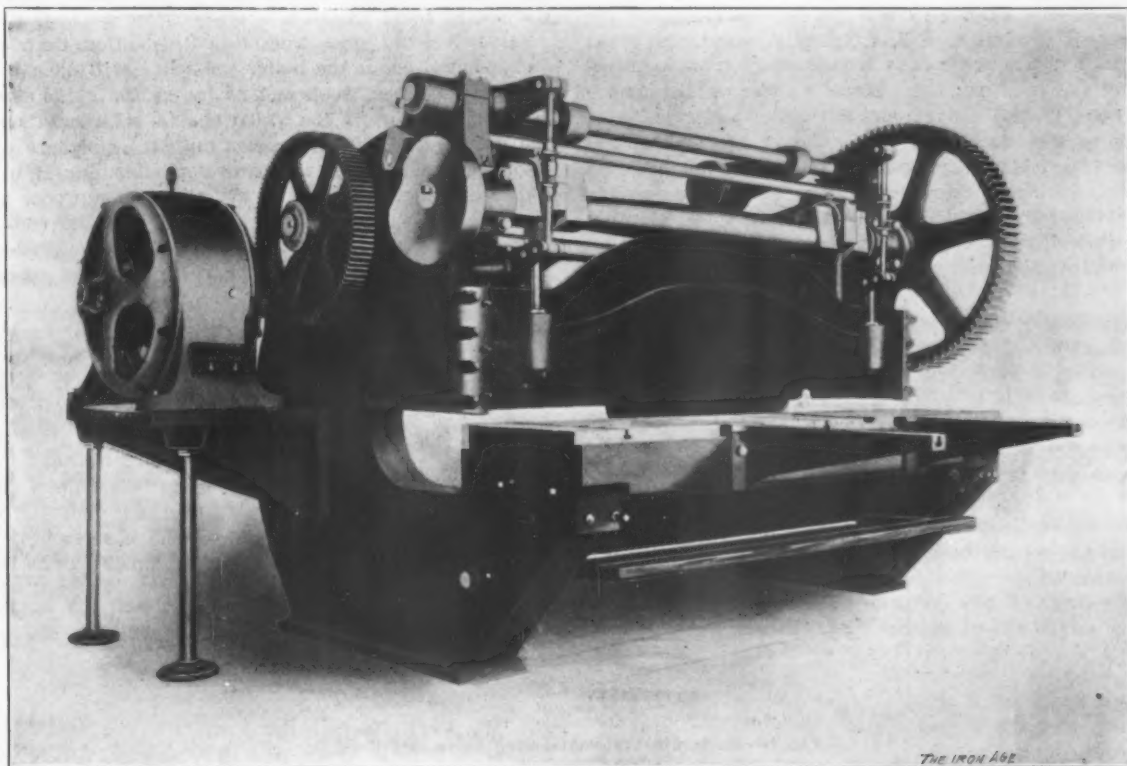
The accompanying half-tone shows a heavy shear lately designed by the E. W. Bliss Company, Brooklyn, N. Y. It is intended for trimming and squaring sheet iron and steel in single sheets or in packs up to $\frac{3}{4}$ inch thick and 11 feet 5 inches long. The blades are each made of a solid piece of tool steel, with two cutting edges, and are carefully hardened and ground. There is an overhang or throat so that a sheet or pack of greater length than the blades may be trimmed by moving it along and taking successive cuts. The gauges are so arranged that the successive cuts will be straight and in line with the first. The gap or overhang is sufficient to allow a plate or pack 60 inches wide to be sheared lengthwise through the middle.

An adjustable cam actuated clamping bar, directly in front of the upper blade, descends in advance of the blade, securely clamping and holding the pack until the cut is completed, and then releasing it automatically. The clamping device is operated from a cam on the end

has no action on the nitrogen and hydrogen. Calcium, however, possesses the property of forming stable compounds with these gases. Meslans has discovered also that the calcium-barium series are capable of uniting with aluminum, so that calcium or barium adds its action to that of the aluminum to eliminate the gases in the blow holes, forming with the hydrogen and nitrogen fixed or stable hydrides and nitrides.

Brazing Cast Iron.

Much interest is being awakened by a recent invention made by Burt Springer of Des Moines, Iowa, whose system of brazing cast iron is based upon a compound. Patents have been applied for on it and upon the method of applying the compound to the article to be brazed. The article to be brazed is heated to a brazing heat and the compound, which is in the shape of a powder, is supplied as in ordinary brazing, and is followed by the use of brass filings, wire or brazing spelter. The novelty of Mr.



A New Trimming Shear Designed by the E. W. Bliss Company, Brooklyn, N. Y.

of the main shaft, which imparts motion to a rock shaft across the top of the machine. Two levers on the rock shaft give motion to the clamping bar by means of two connecting links, arranged with suitable adjusting screws to regulate the pressure upon the work. The main shaft is of hammered steel, 7 inches in diameter, and the two cranks for operating the cutter bar were forged and slotted out.

The shear is driven by a 40 horse-power electric motor. The clutch is operated by a foot treadle, which allows the shaft to remain at a standstill until the treadle is depressed, when it makes one revolution, performing its work, and stops with the crank at the highest point. The distance between the housings is 120 inches; the center of the main shaft is 66 inches above the floor, and the total floor space 203 inches front and back by 227 inches right and left. The weight is about 50,000 pounds.

Maurice Meslans of Paris, France, whose representative in this country is Kai Warming, has patented the use of an aluminum-calcium alloy for making sound steel. Its use is based upon the fact that the gas in blow holes in steel consists of carbonic oxide, hydrogen and nitrogen. Aluminum decomposes the carbonic oxide but

Springer's system depends upon the fact that his compound acts upon the iron to be brazed in such a way as to render it porous. When cast iron is heated to the brazing heat and the composition is applied, it is for the time practically malleable iron and can be bent like a malleable. The pores in the two faces to be brazed become filled with molten spelter and thus make a joint. The practical working of this composition is easily ascertained by sawing through a test piece after it has been brazed. It will be found that the iron for an inch or two from the fissure is permeated with particles of the brazing metal which follow the pores of the metal. The brazing can be done quickly and with the ordinary brazing torch. This system is already in use in a large number of manufacturing plants, railway shops and particularly in repair shops. It is owned by the Hopkins Brothers, Springer Company of Des Moines, Iowa, who place on the market the brazing compounds. These are Nos. 1 and 2, which are used in combination for brazing cast iron, No. 2 for steel, and a quantity of brazing metal. A demonstration made recently before the students of the mechanical department of Chicago University elicited widespread interest, and steps are being taken to include in the mechanical course a series of lessons on brazing by means of the Springer system.

Steam Closing Stop Valves for Boilers.

BY A. B. WILLITS, U. S. N.

Steam pressures in marine and naval service have risen from the 50 pounds per square inch of 30 or 40 years ago to 250 or 300 pounds per square inch in present machinery designs. Few, however, even among the actual users of these high pressures, fully realize this tremendous change in the stored up energy in boilers and piping, or appreciate the difficulties overcome by the modern designer in properly safeguarding its handling.

True, when some casualty occurs to a steam carrying section of a plant there is instantaneous evidence of the intensity of the force theretofore so silent in its chains, and it is toward the perfecting of facilities for quickly checking the outflow of great volumes of destructive steam from such breaks that the efforts of the engineer have been directed.

In the transatlantic merchant service record breaking runs keep up constant hazard, the limit of allowable tension on the machinery being relentlessly applied for a week at a stretch, and, frequently, only very short periods of rest between runs are allowed for proper overhauling and readjustment. Happily these conditions are now being found too expensive, and a safer state of affairs is becoming rapidly established. Of course immunity from mishap can never be assured, but by building engines to utilize safely a larger power than can possibly be produced by the boilers installed, and by adopting the best devices for controlling steam or quickly isolating a defective element, danger is marvelously lessened,

To govern these conditions promptly an arrangement must exist for closing the steam stop valves, feed check valve and operating the furnace fire extinguishers of the injured boiler, from some position always accessible, such as an adjacent fireroom or from the deck above; for if we close the steam stop valve alone the continued entrance of feed water into the boiler, where heavy fires are still burning, will keep that compartment uninhabitable until fires are burned out, unless the rupture should be in the lower part of the boiler so as to keep it depleted of water. But with the numerous divisions of water tight compartments on a war ship it has not, as yet, been thought imperative to do more than to provide means for closing the steam stop valves of each boiler from some such safe position as referred to, and at the same time closing off the compartment itself until deliberate attention can be given to the other functions.

The Old Form of Self Closing Stop Valve.

For many years, and before the present high pressures obtained, the form of self closing stop valve as shown in Fig. 1 was used, where the valve stem proper is a simple sleeve in which a guide stem is worked by hand wheel.

It is readily seen from this illustration that when steam is raised in the boiler the valve will open by internal pressure as soon and as far as the guide stem is screwed out; or, if the valve should stick on its seat, the guide stem can be screwed out far enough to cause its shouldered end A to bear on the bushing B in the top of the sleeve valve stem, and then, after proper opening, the guide stem is run in again until its end just bears on the bottom of the bore of the valve stem. In this position the valve will be ready to close automat-

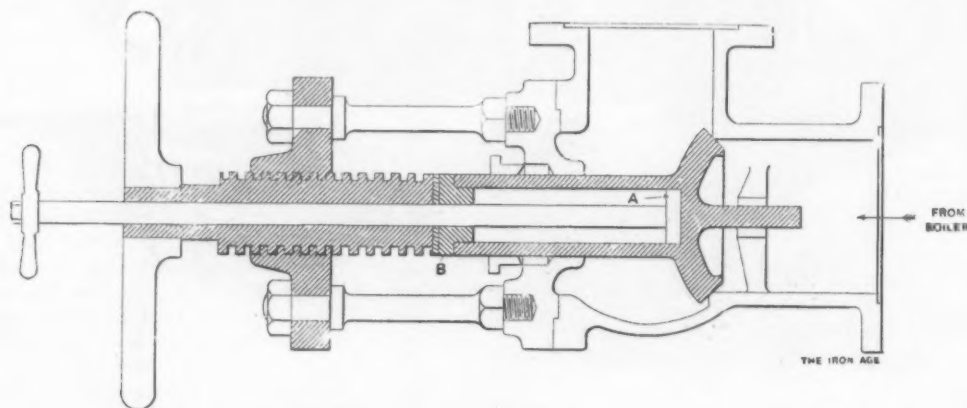


Fig. 1.—Horizontal Automatic Stop Valve, Old Form.

running expenses are reduced and costly delays are made far more infrequent, if not entirely avoided.

In war ships the extraordinary risks come from the work for which such ships are built, the penetration of a shell into the machinery space carrying with it destruction absolutely impossible to foresee. While the introduction of water tube boilers has made the conditions less dangerous by reason of the smaller amount of water carried in a single boiler, there are two cases of primary importance to consider in devising apparatus for minimizing the effects of casualty to the steam plant, however it may be caused or whatever be the type of boiler carried. These are: 1. Where serious rupture occurs to an individual boiler. 2. Where serious rupture occurs to the main steam piping or immediate connections thereof, such as the high pressure cylinder or valve chest of the main engines.

In the first case noted the steam pressure in the ruptured boiler quickly falls, but as long as the other boilers in use at the time remain connected to it by the steam piping their output will follow the path of least resistance, via this rupture into the fireroom and compartment in which the injured boiler is located, rendering it impossible to enter this compartment until the stop valve on the boiler is closed and the boiler itself ceases to make steam.

ically should the boiler be ruptured and the rush of steam be reversed; it being now free to seat itself.

This form was not altogether satisfactory, even for the one case for which it was devised, as it would sometimes cause trouble by closing without the rupture it was meant to guard against. Besides this, it did not in the least degree satisfy the second case, where rupture occurred in the steam pipe outside of the boiler; and as this case is a most important one, improvements were devised for closing these valves from deck by leading thereto continuations of the valve stems, or, in a valve of this kind, the guide stem. Frequently, and in fact nearly always, this was accomplished by tortuous leads and the intervention of gearing and hangers, and as these would often be out of order the system was not wholly reliable. Perfectly direct leads of boiler stop valve stems to the deck above, when possible to install, meet both conditions fully, but as ships are now built this is seldom found to be practicable.

The Advance to a Steam Closing Stop Valve.

The next step was to apply steam to the function of positively closing these valves at any required time, and in Fig. 2 we have an example of an approved device of this kind. Here it is clearly shown that by an independent small steam pipe leading to one end of the closing piston A the stop valve can be closed at will and

from whatever position the steam valve on the small pipe may be placed. In this device we note also that the valve proper is free to close automatically, as was the one shown in Fig. 1.

The objections to this arrangement are that it is a heavy and complicated affair, having two stuffing boxes to keep tight, and also, owing to there being no cushioning device (the outer end of the steam piston being in free connection with either bilge or exhaust system), there is a liability to heavy slamming when using the steam closing connections. Neither is there any assist-

other side, there will be an unbalanced pressure tending to open the valve, so that the valve will positively follow the guide stem when it is run out. While the stop valve is open and in use the two-way cock is kept in this same position and the space behind the piston soon fills with condensed steam and forms a water cushion which prevents chattering and also keeps the valve steadily open under all ordinary fluctuations of pressure. Should the boiler be ruptured, however, there will be an instantaneous drop in the pressure on both sides of this piston and the valve will be closed automatically, as in the

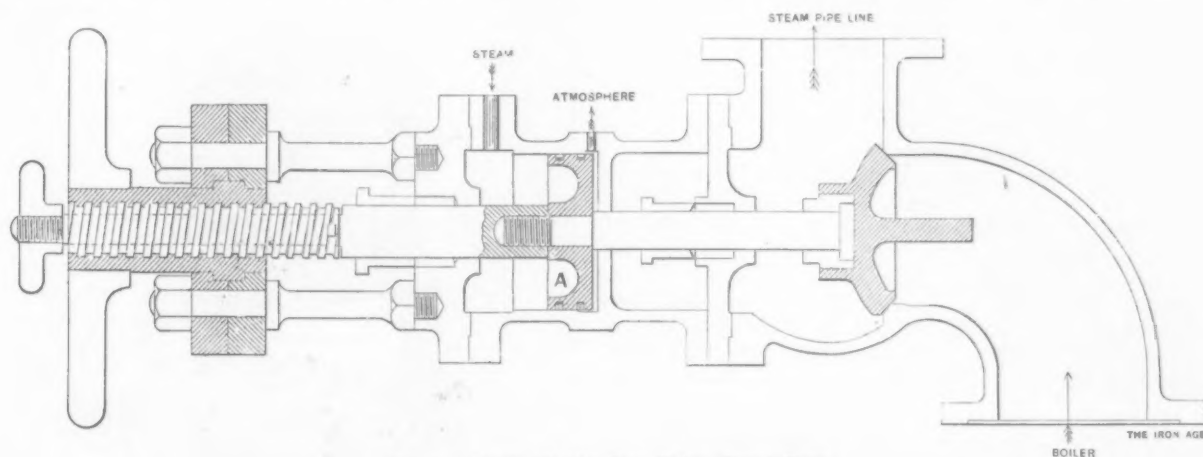


Fig. 2.—Steam Closing Stop Valve, Usual Form.

ance given by the arrangement to the opening of the valve.

The Latest Form of Steam Closing Stop Valve.

The latest invention in this line is shown in Fig. 3, and is so much simpler in form and so much easier of control as to warrant a few words of special explanation.

In this device the steam closing piston and its cylinder are part of and combined with the stop valve, having a common incasement, and as the piston is made with a larger area than that of the stop valve there is, as long as the outer end of the cylinder is connected with the atmosphere or exhaust, an unbalanced pressure on the piston which will drag the stop valve shut and keep it so. The two-way cock *a* is shown in the figure in this position. The valve stem proper extends up

other devices, by the inrush of steam, while the turning of the two-way cock to the position *a* again will secure the valve shut or hasten its closing.

In event of a rupture of the steam piping outside of the boiler, or on any occasion when it is desirable to close the valve by steam, the advantage of having water of condensation behind the piston is more evident, as by simply turning the cock gradually the speed with which the valve closes can be governed exactly, and prevent all slamming, in as gentle or rapid a seating as circumstances may allow.

The two-way cock can, of course, be placed wherever it may be desired, in adjacent firerooms or engine rooms, and an emergency pipe of small size can be connected to outer ends of all these cylinders, and, by having a single simple valve in this pipe located in the engine room or

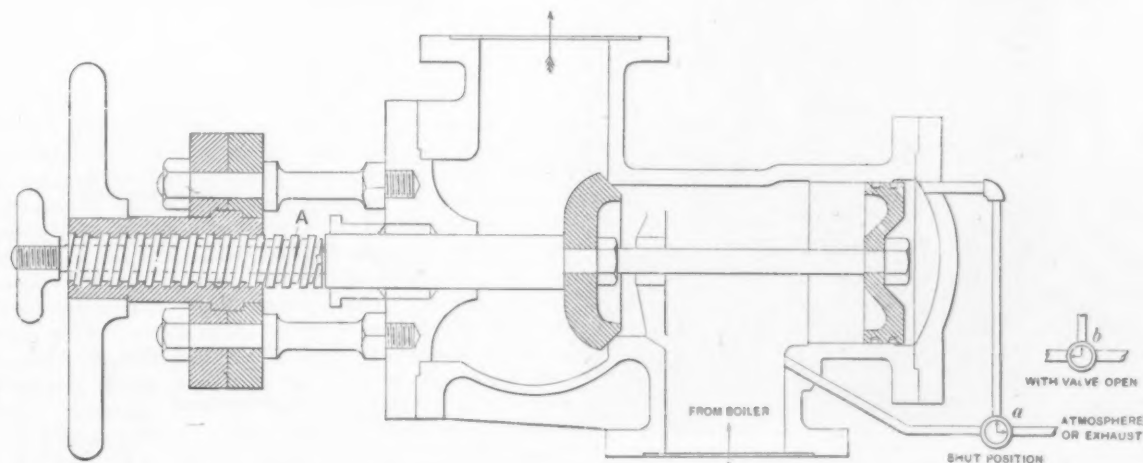


Fig. 3.—Latest Form of Steam Closing Stop Valve.

through a threaded guide stem A, and has a small nut on its upper end simply to use for the guide stem to bear upon when it is desired to open the valve solely by hand. At all other times this nut is kept off and the valve stem left free to slide in A, to retain the original self closing feature of the other designs.

In opening this valve the two-way cock is placed in the position shown at *b*, connecting both ends of the cylinder, and as the piston rod area makes the outer side of the piston have more effective area than has the

some central station, all the open stop valves can be instantly closed in event of the wrecking of one of the main engines or other extraordinary accident, by opening this little valve and running the water into the bilge.

On August 9, 1904, at the Pencoyd Iron Works, Pencoyd, Montgomery County, Pa., was rolled the largest angle ever made. It is an 8 x 8 x 1 inch angle, 110 feet long, and its finished weight is 5808 pounds.

The Westinghouse Automatic Pump Controller.

Recently a new automatic pump controller, as shown in the accompanying illustrations, has been brought out by the Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., for use with its type C polyphase motors, from 5 to 50 horse-power capacity. The purpose of the controller is to start the pump when the water in the tank which it supplies falls below a certain level and stop it when the water again attains the required height. Any suitable mechanical means may be employed for actuating the controller, such as the arrangement shown in the diagram, Fig. 3, where adjustable stops raised and lowered by means of the float in the tank engage the end of a starting lever to rotate the controller. The action of this device is reliable and does away with the necessity of all attendance except such occasional inspection as any machinery might require.

The controller embodies a Westinghouse oil immersed auto starter, C, Fig. 1, with the stopping and starting mechanism connected by link A, governed by the weighted lever B. This lever moves freely through an arc of 138 degrees in a slot in the drum of the automatic device, falling this distance when the action of the float has turned the drum sufficiently to lift the weight past a perpendicular position. As the water level is lowered the drum is turned by the falling float and the weight is

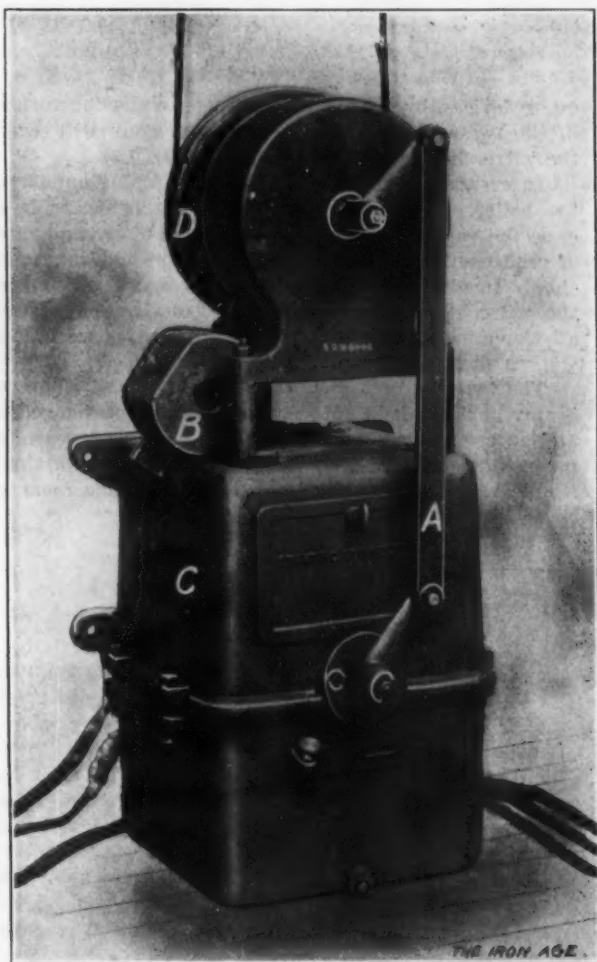


Fig. 1.—Front View of the Westinghouse Automatic Pump Controller.

slowly lifted until it reaches its upright position, when it falls, throwing the handle to a full running position and starting the pump. As the water rises, the rising float turns the drum in the opposite direction and the weight is lifted until it finally falls to its original position, throwing the handle to the opposite direction and stopping the pump. The connection to the drum from the starting lever is by means of a rope passing over the sheave D.

To manipulate the auto starter evenly and gradually the impetus of the falling weight is checked by a dash

pot, E, Fig. 2, which can be adjusted to regulate the speed of the movement. The weighted arm moves loosely upon its shaft, and as it falls compresses two spiral springs. These are coiled loosely around the shaft and pressed against a casting which is keyed to the shaft, but which is prevented from turning by a pawl engaging notches in the main casting. The weighted arm compresses the springs and then trips the pawl, which the

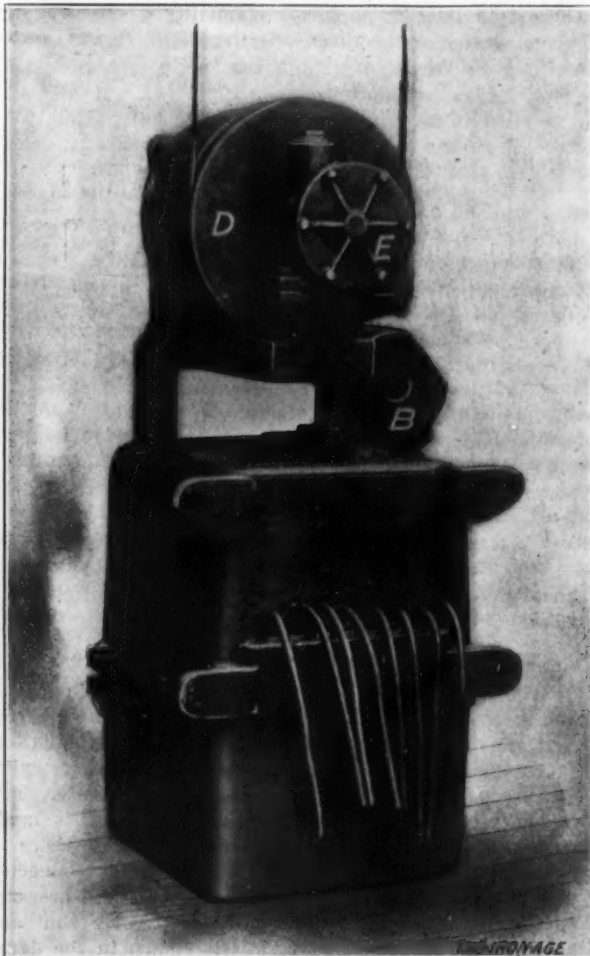


Fig. 2.—Rear View of the Controller.

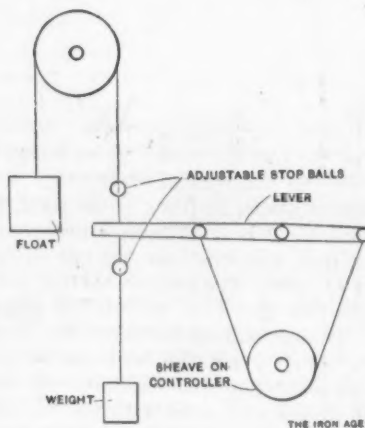


Fig. 3.—Diagram of One Method of Connecting the Controller with the Float in the Tank.

springs move quickly to the next notch. The pawl is tripped three times in the downward movement of the weight, and each time it is tripped it allows the shaft to be turned a certain distance by the compressed springs. The auto starter is thus thrown through three notches, stopping or starting the motor.

The attachment for operating the controller, as shown in Fig. 3, is designed for use when the controller is placed below the tank. If desired, the controller may be mounted above the tank, a rod attached to the float and passed through the end of the lever replacing the rope

illustrated, the stops being attached to this rod. This part of the outfit may be simply devised and will depend upon the conditions of installation. It is, therefore, not furnished with the controller, it being left to the purchaser to arrange the actuating mechanism to suit himself.

The Automatic Machine Company's Wire Crimping Machine.

In bringing out the machine for crimping wire, illustrated herewith, the Automatic Machine Company, Bridgeport, Conn., believes it has the first machine for that purpose ever placed on the market. Wire workers heretofore, when they have had work of this class, have contrived a machine from whatever material they have had at hand, and naturally the result is seldom all that is to be desired.

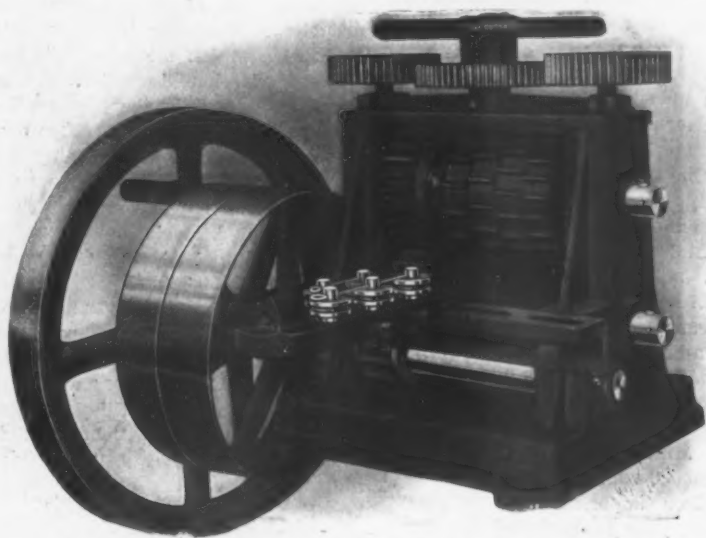
It will be noticed that this machine is of a very substantial design. The frame and bed are in one casting. There are two crimp roll shafts geared together, the upper gear being adjustable in a slot and secured in position by a clamping screw so that the rolls will space accurately and produce an even crimp. The crimp roll shafts are $1\frac{1}{2}$ inches in diameter and the gears and rolls are keyed upon them. On each shaft are mounted four crimping rolls having inserted hardened steel pointed

specifying the lift bridges recently erected by that city. The party included Capt. J. J. Morrow, assistant engineer to the engineering commissioner in charge of surface work in Washington, W. J. Douglas, engineer of bridges, and T. B. Wilson, assistant engineer. They were personally conducted about the city by City Engineer Charles Poetsch of Milwaukee.

Electric Traction from Gas Power.

A somewhat unique departure from established methods in electric traction has recently been undertaken at Warren, Pa. The Warren & Jamestown Street Railway Company is equipping an alternating current single phase electric railway system to operate between Warren, Pa., and Jamestown, N. Y., for which power will be supplied by gas engines operating upon natural gas. The equipment is now being constructed by the Westinghouse Companies at East Pittsburgh, Pa.

The power station will be located at Stoneham, Pa., two miles from Warren. The initial equipment will consist of two Westinghouse gas engines, each of 500 brake horse-power capacity. They will be of the horizontal single crank double acting type, direct connected to two 260-kw. Westinghouse generators, furnishing current at voltage sufficient for direct use upon the high tension



The Automatic Machine Company's Wire Crimping Machine.

teeth for any four meshes desired. The shafts project through their bearings in the housings far enough to receive another pair of crimping rolls. These can be readily changed for jobbing work, the standard rolls remaining between the housings at all times. A five-roll wire straightener is placed in front of the rolls through which the wire is fed. This is adjustable upon the slotted table shown, so that the wire can be introduced to the required set of rolls. The casting holding the straightener has a guide for the wire, to enter it properly between the rolls. The adjustment for depth of crimp is regulated by screws which carry the bearings of the upper roll shaft. Gears of like size on the ends of the screws mesh with a gear connected with the hand wheel, shown at the top of the machine. By this means the crimping roll shafts are maintained parallel at all times, insuring perfect work.

The machine is driven by belt running on tight and loose pulleys 12 inches in diameter by 3 inches face. On the driving shaft is also mounted a 24-inch balance wheel and a shrouded pinion engaging gears on the crimping roll shafts. The balance wheel is fitted with a handle so that the machine may be driven by hand or power to suit the customer's facilities. Furnished as illustrated, the machine is intended to be placed on a bench, but a base plate and legs may be had if required.

A party of engineers from Washington, D. C., visited Milwaukee, Wis., November 18, for the purpose of in-

transmission line. The power equipment also comprises a 55 horse-power Westinghouse gas engine for operating air compressor and exciter unit. Natural gas will be used, furnished by the local distributing company. In this district the gas has a calorific value of about 1000 British thermal units per cubic foot.

Transformer stations, five in number, will be located along the right of way. These will receive the high tension current from the transmission line and reduce the voltage to such an extent as to render it more suitable for use in single phase motors. The present motive power equipment will comprise four quadruple sets of Westinghouse single phase motors, each approximately 50 horse-power capacity. An interesting feature of the system is the arrangement for operating the alternating current motors upon the direct current trolley lines within the city limits of the terminus.

The Warren & Jamestown Street Railway is not a newly organized system, as it has operated part of the present lines for a period of eleven years. Three years ago the company began experimenting with the use of gas power, with sufficient success to influence it in the now exclusive adoption of gas engines for its entire power generation.

The Bay State Tap & Die Company, Mansfield, Mass., for some time past has been experimenting with high speed steel for taps and dies and is now making a line which is entirely satisfactory.

The Calumet & Hecla Copper Lode.*

BY T. A. RICKARD.

The recital of the events connected with the uncovering of the Calumet & Hecla lode forms a story by itself. It does credit to the persistence of the discoverer, Edwin J. Hulbert, and to the shrewdness of his financial supporter, Quincy A. Shaw, but it is marred by one of those not infrequent misunderstandings between men of unlike temperament, resulting in the familiar dispute as to whether the man who finds or the man who finds a great mine should be the chief beneficiary. Hulbert was a surveyor; he had laid out roads and mapped lands and mine workings for ten years before the discovery. He has related how†, in 1853, he lived in the Eagle River district and became a keen student of mining geology under such veterans as W. H. Stevens, Samuel W. Hill and Charles Whittlesey. At that period mining for copper in the bedded series was not recognized as promising profit, and all the work was concentrated upon the transverse veins of the district. In 1858 he began the survey of a State road from Copper Harbor to Ontonagon, and, while making the northern portion of this survey, he found fragments of a brecciated conglomerate containing copper similar to "float" encountered by him several years earlier on the banks of Eagle River. The conglomerate differed from any other in the district by being brecciated, and it started him on a long and persistent search.

In making a final survey for the road from the Cliff to Portage Lake he picked up some fragments of this conglomerate, and shortly afterward he discovered a big block of it, covered with moss; also, not far away, he observed a depression which he took to be an ancient pit, similar to others previously known elsewhere in the Keweenaw peninsula. Upon examining the map he found that this was on Government land; therefore, in February, 1860, he bought a tract of 1920 acres, so located as to cover the ground in which he purposed to explore for the copper bearing breccia conglomerate. In July, 1861, he deeded a three-quarter interest in this land to J. W. Clark, Horatio Bigelow and other Boston men. The Civil War came, mining activity languished and nothing was done until 1864, when this tract became the basis for organizing the Hulbert Mining Company, in which he was allotted 5000 out of 20,000 shares.

In May, 1864, he became superintendent of the Huron mine. In July of that year he revisited the site of the conglomerate bowlder in the forest and found everything undisturbed. Having determined to renew exploration, with more system, for the long sought copper lode, he wrote Bigelow of the Hulbert Mining Company to purchase more land. This was done, the price being \$35 per acre for 200 acres. Immediately thereafter he chose a point of attack (the site afterward of the Calumet No. 4 shaft), and on September 17, 1864, his brother John and Amos H. Scott, working under his direction, cut through the amygdaloid forming the hanging wall into the copper bearing conglomerate. Winter coming, work shortly ceased. A barrel of specimen rock was sent to Boston on November 15, 1864. In the advice of this shipment it was suggested that another company be formed to hold the land in Section 13, held by the Hulbert Company, and this was done, in December, under the name of the Calumet Mining Company of Michigan. This company was organized on a basis of 20,000 shares; in the same month the Hecla Mining Company was also formed, with an equal capitalization. In the spring of 1865 he went to Boston and met Quincy A. Shaw, arranging with him a loan of \$16,800, wherewith to buy additional land; this was deeded to the Calumet Company and he received 5833 shares, making his holding 10,833 shares in the 20,000 shares for which the company was organized.

Meanwhile, in 1865, exploration of the ancient pit, noted long previously by Hulbert as occurring near the discovery of the conglomerate, had proved that it was

not a prospect hole nor a pit sunk on a copper lode, but an Indian hiding place or "cache" in which was found a mass of copper, unaccompanied by tools of any sort, such as suggested former mining, but there were found birch bark baskets used for carrying copper; also pieces of Indian tanned deerskin, such as is employed for repairing moccasins, and other articles, proved it to be no mine opening. Over 50 barrels of copper carbonate were taken out of this excavation, this being the weathered remnant of copper which had been secreted there by the former diggers. In February, 1866, the pit was cleaned out, and on sinking through the floor of it, the amygdaloid overlying the Calumet lode was penetrated and conglomerate exceedingly rich in copper was encountered. The "cache," therefore, was close to the lode, but not on it, being on the hanging wall side. Hulbert at once sent word to Mr. Shaw to secure the refusal of Section 23, covering the ground which it was obvious the lode traversed on its strike southwestward. This section was part of the territory belonging to the St. Mary's Canal Mineral Land Company. The United States Government had granted the State of Michigan 500,000 acres of mineral land in the Upper Peninsula for disposal to the company which built the canal connecting the St. Mary's River with the basin of Lake Superior. This grant became the basis for the organization, in 1858, of the St. Mary's Canal Mineral Land Company, which forthwith began the sale of lands, and remains to this day a large proprietor of mining territory, being also a half owner in the Champion mine, as will be related later in this account. Section 23 was bought from the Canal Company for \$60,000, and Hulbert was allotted one-third of the 20,000 shares of the Hecla Company, which acquired it, the remaining two-thirds being held by Mr. Shaw and his brother. Thus Hulbert was able to lay claim to having selected every acre of the mining land held by the Calumet & Hecla.

The Calumet Mining Company was organized with a capital of 20,000 shares, having a par value of \$1. Toward the close of 1865 the reports of the richness of the lode became noised abroad, and the stock rose by successive jumps, until in July, 1866, it was quoted at \$75 per share. An assessment of \$5 was made to raise working capital, and this assessment was followed by others, making a total, up to that time, of \$12.50 per share. The absence of mass copper, and the supposed difficulty of treating the rock, caused these calls to fall heavily, and many of the local stockholders sold out—to their life long regret; indeed, before the profit earning stage was reached there was much financial embarrassment, by which Hulbert suffered seriously. What with assessments and loans, about \$1,200,000 was raised before the mine became a profitable undertaking; all the original owners in the Calumet & Hecla enterprise were severely put to it to provide money to develop the mine until it earned profits. Hulbert lost a large part of his interest by having to exchange it for debt certificates of the Huron mine, of which he was the manager. This embittered him, naturally enough; there was a quarrel with Quincy Shaw and the Boston directors, but about 20 years ago a settlement was made with Hulbert, he receiving \$300,000 in Calumet & Hecla stock, which was placed in trust; the income from it now supports him comfortably. Mr. Hulbert is now living at Rome.

The Hecla paid its first dividend, of \$5, in December, 1869, and the Calumet in August, 1870. The two companies were consolidated in May, 1871, the Portland and Scott companies being included; the Calumet & Hecla was then organized, with a capital of \$1,000,000, in 40,000 shares. At that date the dividends of the united mines had already amounted to \$2,800,000. In 1874, 230,000 tons were treated, at a cost of \$7.40 per ton, yielding 4.28 per cent. copper; in 1875, 239,000 tons at a cost of \$5.82 per ton, yielding 4.33 per cent.

In 1879 the capital stock was increased to \$2,500,000, or 100,000 shares of \$25 each, this being the limit allowed by the laws of the State of Michigan. In 1881 eleven shafts had been sunk and an estate of 1720 acres had been consolidated. The dividends that year amounted to \$2,000,000. At the end of 1882 the Calumet & Hecla had taken copper valued at \$71,219,610 out of ground

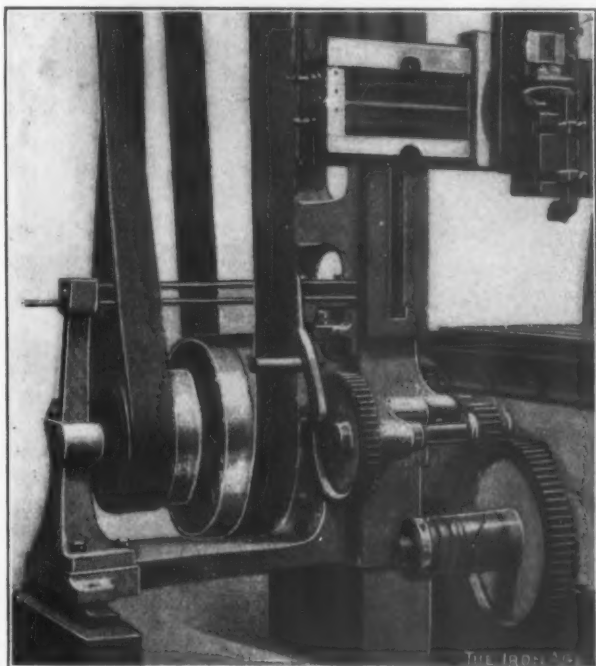
* From the *Engineering and Mining Journal*, November 10.

† "Calumet Conglomerate, an Exploration and Discovery Made by Edwin J. Hulbert, 1854 to 1864." Pamphlet, *Ontonagon Miner Press*, 1893.

equivalent to 120 acres. In 1883 the average width of stope was reported* as 8 feet, with a maximum of 20 feet, and an average yield of 4.5 per cent. copper. The mine made most of its water between the fourteenth and eighteenth levels, being so dry at the bottom, then at 3000 feet, on the lode, that water had to be taken to the drillers. The levels were 93 feet apart on the dip, or 60 feet vertical. The company owned 13,335 feet on the strike, embracing practically all the known rich part of that particular conglomerate bed. It was recognized at that time, as it is now, that the Calumet & Hecla is not representative of the region, because it possesses a lode so rich that there is no other mine to be compared with it, either in amount of production or in extent of profit. The expenditures and methods of this company would have killed any ordinary mine; apparently, the management, in the past especially, has had no need to aim at economy, and evidently it did not, although it does now. The Calumet & Hecla has paid dividends to date aggregating \$86,350,000 on a capital of \$2,500,000, par value.

A Cushioned Planer Drive.

The *London Engineer* in a recent issue describes an interesting device for cushioning the shock attending the reversing of the bed of a planer. This invention is owned



A Cushioned Planer Drive Manufactured by Smith & Coventry, Manchester, England.

by Smith & Coventry, Manchester, England, and has proved so satisfactory on the many planers on which it has already been tested that they are now putting it on all their new machines, and they are even converting old machines so that it may be applied. The accompanying illustration shows the small amount of space which the device occupies and indicates its simplicity, there being no parts likely to get out of order. The large gear wheel at the right-hand lower corner of the engraving is loosely mounted on the shaft carrying the pinion which engages the rack on the under side of the bed. The boss on this large gear wheel is formed as a clutch with inclined faces, and meshes with a similar clutch, which is free to slide, but cannot rotate on the shaft. The two clutch members are pressed together by a powerful and adjustable helical spring. In its action the device resembles a lightning tapper except that the jaws of the clutch never come entirely out of engagement. At each end of the stroke, as the belt moves from one pulley to another to reverse the table, the inclined faces slide upon each other, the spring is compressed and the table is

stopped without jar or shock. In fact, the reverse is so gradual that a short candle which was stood up on end on the table of a planer in the Smith & Coventry shops did not fall over at each reverse, but only rocked slightly.

As the table is started the spring is compressed for an instant while the inertia is being taken up. It then extends again, giving up the energy stored in it, but does not quite close. The small amount of opening left is proportionate to the work of moving the table, and as the tool begins to cut it increases somewhat. As the table is reversed the clutch closes momentarily and is then opened again by the momentum of the table, the energy which is thus stored in compressing the spring being instantly returned in effecting the reversal of the gearing.

It is of great importance when cutting up to a dead line that the table should not overrun at the end of each stroke. Particular notice was taken of this point on a planer geared 3 to 1 and cutting at a speed of 25 feet per minute to see if the conditions were fulfilled. Naturally the table cannot stop precisely at a fixed point, but the amount that it is carried forward is sufficiently small to be negligible in practice and no trouble is experienced with it. It should be mentioned that the gearing which is exposed in the engraving is ordinarily covered by steel shields and that the machine shown was mounted on timber blocks for the purpose of making the test.

The Wisconsin Supreme Court has handed down a decision affirming the judgment of the Circuit Court of Milwaukee County in favor of Xavier Jeka, as against the Illinois Steel Company, in its effort of several years past to eject some 200 families from Jones Island, which adjoins the property owned by the company. The company holds the record title to Jones Island, or most of it, but Jeka and his codefendants claim the title by adverse possession, on the ground that they had lived there continuously for over 20 years, having obtained title from Jacob Muza, once the owner of almost the entire island. The property occupied by the settlers, whose claims are now made secure by the decision of the Supreme Court, amounts to over half the island, valued approximately at \$2,000,000, and it is said that the decision may have considerable effect upon the future plans of the steel company. What is known as Jones Island is, strictly speaking, a peninsula, and is connected with the property of the Illinois Steel Company to the south by a narrow strip of land, with Lake Michigan to the east and one of the branches of the Milwaukee River to the west. The company has secured by ejection and voluntary releases considerable of the property in litigation, but cannot proceed with any plans for additional development of its plant until the settlers, numbering over 100 families, who have been fighting it, give up their title and move from the property. The inhabitants of Jones Island have for many years been fishermen, and have practically managed their own affairs, although within the city limits.

The management of the Power & Mining Machinery Company, Cudahy, Wis., gave a banquet to its executive staff at the Hotel Pfister, Milwaukee, November 12. The staff of the company has lately been reorganized, and the dinner was given with a view to bringing the members into closer social touch with each other, and also to discuss the present business conditions. H. P. Elwell, manager of the company, presided at the banquet, which was attended by heads of all the departments, including, beside the executive officers, the chief engineer, chief draftsman, sales managers, purchasing agent, superintendent and the foremen of the several shops.

The November meeting of the Milwaukee branch of the American Society of Mechanical Engineers was held November 16 at the Pfister Hotel, and was largely attended by members and their friends. Papers were read on "Barometric Condensers" and "Dry Vacuum Pumps," by R. D. Tomlinson of the Allis-Chalmers Company and E. P. Worden of the Prescott Steam Pump Company.

* Chas. Kirchhoff, the *Engineering and Mining Journal*, May, 1884.

Arizona Copper Developments.

Some notable developments are going forward at the Calumet & Arizona group of copper mines, in which several of the properties share. It looks more and more, as time passes, as though all prior expectations and prophecies as to these mines would be discounted by the realities, and as though all statements that have been made relative to them had been ultra conservative.

In Calumet & Arizona, which is the oldest, having been under development since 1900, the ore reserves have been materially increased within a few months, and a new mine is now being opened on the Senator claims, lying half a mile south of the Irish Mag claim, in which all the company's work had previously been done. It is probable that this mine will be at least as important as that which has been partially opened in the Irish Mag. Connecting the two properties is the Pride claim, and on the 1250-foot level here the company is developing what seems to be an important body of ore, while the entire area is in the formation that here seems to indicate the presence of ore bodies within a reasonable distance.

Lake Superior & Pittsburgh, owned by the same parties, has been developing an important ore body for many months. It was first cut on the 1000-foot level south from the Cole shaft, and was followed for about 150 feet with a varying width up to 75 feet. It was found later on the 900-foot level by an upraise, and has now been cut on the 1100-foot level and 100 feet nearer the shaft than on the 1000-foot level. Assays average up to 20 per cent. and higher for the different levels. There is already great value in this ore body and there are no indications of discovery of its limits. At other parts of this property are indications that ore bodies as large and valuable may be found.

The Pittsburgh & Duluth Company was organized as a mining corporation November 1. It was first taken up and development commenced in May, 1903. On one drift a large body of black oxides of copper and carbonates as well as much native copper has been cut recently, and there is now a length of rich ore of about 75 feet in this drift. Indications are for the increase of this ore body with depth and for the discovery of other large bodies in other favorably located portions of the property. The directors and officers of this company were elected at a meeting held in Duluth, Minn. They are similar to those of all the other Bisbee companies under the same management—namely, Calumet & Arizona, Calumet & Pittsburgh, Lake Superior & Pittsburgh and Junction Development. The company has \$3,000,000 authorized capital, of which \$500,000 remains in the treasury, and the balance is allotted to present stockholders at the rate of two and one-half shares for every one of development stock, and two and one-half shares at \$10 each to the same persons.

This is the fourth of the five companies organized by these Duluth, Calumet and Pittsburgh people to become mining companies, and the fifth to find ore, for the Junction also has ore in considerable quantity. This has not been exposed, but the work of diamond drills from the bottom of the shaft has disclosed the presence of good bodies of ore that should develop into something of importance.

D. E. W.

A Severe Test of Westinghouse Generators.—Three Westinghouse 62½-kw. engine type generators, which have been in service in the basement of the New England Building, Cincinnati, Ohio, have recently been subjected to a test which shows up Westinghouse construction in a very good light. A fire occurred in the basement which completely burned away the insulation on the outside of the field coils, and the fire department played upon the machines with six lines of hose for one hour. Within one hour from the time the water was turned off the machines, one of them was in operation and carrying its full rated load. The second machine was put in operation later, and carried its full rated load, and at the present time two of these machines are operating under the load normally carried by all three of them. The fire proof insulation of the field coils withstood the fire perfectly, even though the outer

protecting coverings were entirely consumed and the heat was so intense as to burn and blister the finish on the frames. Electrical machinery as usually constructed is scarcely expected to stand a fire and water test, but it appears that such a guarantee might have been made on these generators.

The Billings & Spencer New Trimming Press.

Several improvements have recently been made to the hot trimming press manufactured by the Billings & Spencer Company, Hartford, Conn., for use in drop forging as an adjunct to the power hammer. In the new press,

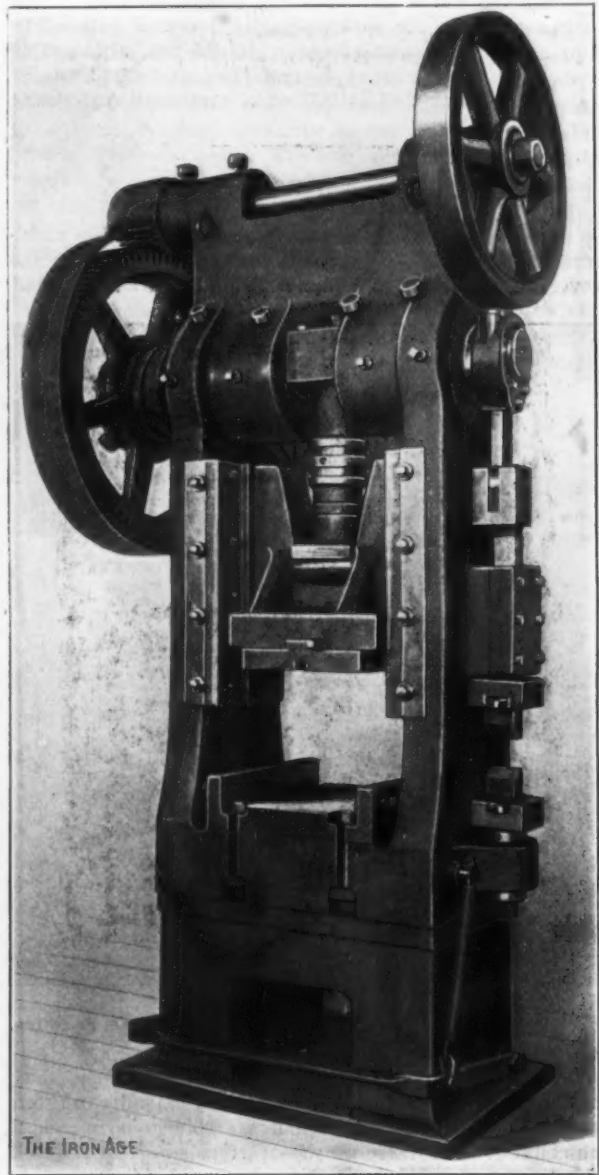


Fig. 1.—The Billings & Spencer New Trimming Press.

shown in the accompanying illustrations, one important change is the mounting of the pinion shaft on top of the housings instead of in the usual position at one side beneath the crank shaft, the result being a considerable saving in floor space. When a new press is to be installed in a drop forging plant it is often a question as to where to place it. The natural location is between hammers, but these are mounted on special foundations and are consequently difficult to move to make room for the press. With the new type of press the usual space between hammers is ample.

The press is designed for heavy work, and another important feature of it is the new and powerful knockout device, in which the usual pins are replaced by a heavy block or catch-up, which engages a slotted plate on the big gear. This block, catch-up or locking bolt, as it is

variously called, is $1\frac{1}{4} \times 2\frac{1}{4}$ inches, and may be seen at A in Fig. 2. It slides in a collar, H, fixed to the crank shaft and is backed up by a spring, B. The bolt is released by the pressure of the treadle and engages one of the slots F in the plate C as soon as the slot and bolt register, making the large gear integral with the crank shaft and setting the press in operation. In the block is a notch which is engaged by the cam shaped nose D of the knock off, this action withdrawing the block and holding it out until it is again released by the treadle. The press will take work up to 16 by 20 inches and weighs about 15,000 pounds.

Pacific Coast News.

SAN FRANCISCO, CAL., November 12, 1904.—There could not be better weather for business than that which now prevails and which we have had for some time. Hence business keeps up as well as at any time during the fall, and it now looks as if the activity prevalent would extend into the new year. The crops sown look well, and, profiting by the opportunity, the farmers have plowed a great

Pacific is turning the road from Carson to Colorado, 300 miles, from a narrow to a broad gauge. The business of this section is now supplied principally from this city and will so continue as long as our merchants are able to supply the goods needed with sufficient promptness. As far as Eastern goods are concerned, our San Francisco merchants will have to establish branch houses at the mines and order their goods direct from the manufacturer. Only in this way can they compete with other jobbing centers, as the same roads are open to all.

There have been lately heavy exports from this city to the Orient. One vessel, the tramp steamer *Algoa*, took close to \$1,500,000 in merchandise nearly equally divided between China and Japan. There were very heavy shipments of iron and steel goods, machinery, &c. There is one conspicuous article absent, and that is bicycles, which went over in such quantities for the army of the Mikado during the earlier part of the year.

The *Doric*, on November 9, took out for Japan machinery valued at \$35,370; 120,720 pounds of steel plate, valued at \$12,400; 240,496 pounds of bar steel, valued at \$16,165; iron pipe valued at \$956; 397,805 pounds of tin

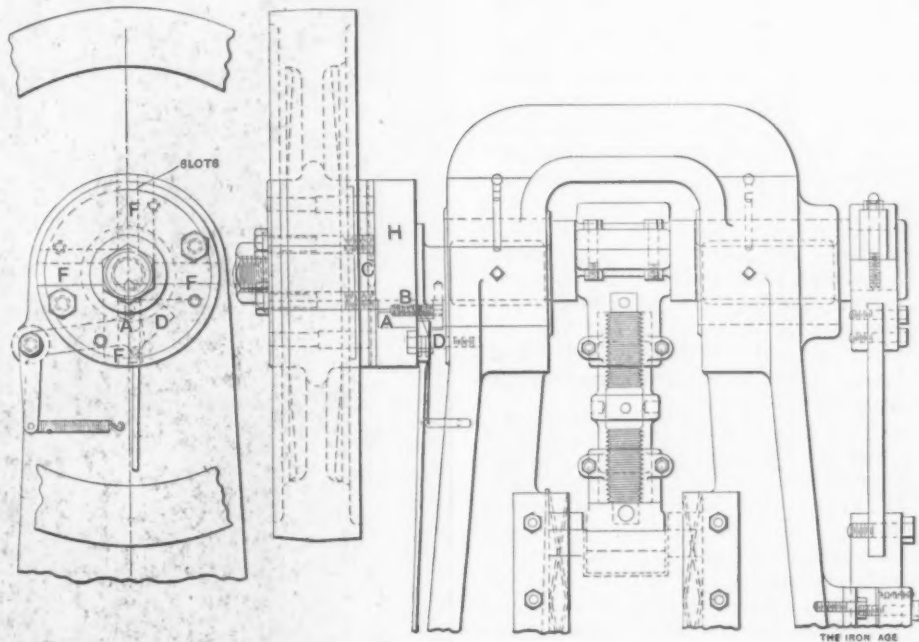


Fig. 2.—Detail of the Driving Mechanism of a Press Similar to the One Shown in Fig. 1, but Driven Directly Without a Gear Reduction.

breadth of land. At the same time, as usual, some begin to complain because there has not been more rain, but quite enough has fallen for the present, and though last year's crops did not come up to expectation, between wheat and barley we have had 1,000,000 tons of grain, which is equal to the old wheat crops, and both wheat and barley are now brisk, bringing good prices.

There is plenty of money in the country, and all the varied industries require fresh supplies of manufactured goods, such as hardware, agricultural implements, machinery, &c. Hawaii and Tonopah are coming to the front as buyers. The former is rich from its big sugar crops of this year and most of the companies are beginning to declare dividends. A great deal of money will be spent on the plantations this year, and machinery and iron pipe for irrigation, as well as building hardware for Honolulu, Hilo, &c., will be in brisk demand.

As regards Tonopah and Goldfield, Nevada, the most wonderful development is being made, and ore assaying \$20,000 to the ton is frequent. Supplies of all sorts are in great demand, as the population is increasing rapidly, and, in fact, the necessities of these mining camps are at present hard to meet. Among the principal articles are machinery and iron and steel in their various forms. Railroad material, too, will be needed, as the Southern

plate, valued at \$11,677, a total to Japan of over \$76,000. Australia takes a large quantity of machinery down on every steamer, while a great deal of mining machinery finds its way by the various steamers of the Pacific Mail and the independent steam lines.

J. O. L.

The Austro-Hungarian Government has determined to entirely reorganize the torpedo boat flotilla, depending for the future upon two types only—the destroyer and the first-class torpedo boat. The former will attain a speed of 28 knots with a load of 100 tons; the latter is required to make 25.7 knots when carrying 55 tons. The interesting feature of the new programme is, however, the fact that the engines of both types will be perfectly interchangeable, not only with others in the same type, but to and from the larger and the smaller, for the destroyers will have twin screws, each actuated by one engine, while the torpedo boats will have each a single screw, operated by a single engine, which is an exact duplicate of each of the destroyer engines. This policy indicates great farsightedness on the part of the Austrian authorities, though doubtless the torpedo boats will lose much in maneuvering power, due to the fact that they have only one screw.

Chicago City Improvements.

The city of Chicago is taking on new life in the purchase of machinery and supplies for its municipal plants. Bids on two 40,000,000-gallon pumping engines were closed on the 17th and are now being tabulated. Bids are being asked on a 20,000,000-gallon pumping engine for the Sixty-eighth street pumping station, bids to close December 16. Specifications are being prepared for a garbage disposal plant with a daily capacity of from 1000 to 1200 tons.

Proposals are being asked for building a steel superstructure for the crib of the Lake View Pumping Station. The specifications call for the removal of the old superstructure and the erection of a new one on the old foundation. The building has a 12-sided base and is 69 feet in diameter, with a height of 34 feet from the masonry to the lantern base. Specifications call for a steel building with trussed tile roof, with light tower and lantern. The floors in the gallery and balcony around the well in the center of the building, in the light tower, the lamp room and the landing platform are to be made of checkered cast iron floor plates. The partitions between the various rooms of the crib house are to be made of Portland cement on wire lath. The contract also calls for heating of the building, including a horizontal tubular boiler, 42 inches by 12 feet. The boiler room is also to be equipped with two duplex steam pumps, a force pump, a 36 x 72 inch receiving tank, a 30-inch by 8-foot house tank, an 18-inch by 6-foot hot water tank and the customary appurtenances necessary to a high pressure steam heating plant. Radiators with a total amount of 1608 square feet radiation are called for, as is also a garbage crematory plant. The plumbing work specified is such as would be installed in an ordinary 10-room residence. The light tower drawings call for a steel structure, including plate steel lantern tube 34 feet high and 24½ inches diameter. This crib is situated in Lake Michigan two miles from shore and about eight miles from the mouth of the Chicago River.

Two new bridges are proposed, one of which—that in Archer avenue across the south branch of the Chicago River—is already advertised for, and the specifications for the other bridge, at North avenue on the north branch of the Chicago River, will be issued in a few weeks. Specifications on the Archer avenue bridge call for a single leaf counterbalanced lift bridge, 107 feet long between fenders. It will require 550 tons of structural steel, 50 tons of machinery and 500 tons counterweights. Its machinery equipment will include two direct current electric motors, 65 horse-power each, at 550 volts, together with circuit breakers, switches, cut offs, &c. Power will be rented from one of the street railway companies. The equipment will also include a centrifugal pump outfit sufficient to raise 250 gallons of water to a height of 16 feet per minute, the pumps to be driven by a 3 horse-power electric motor. The bridge is to be completed on or before December 1, 1905. The bridge at North avenue is to be a two-leaf lift, 136 feet 6 inches between fenders and requiring about 700 tons of structural steel, 550 tons of counterbalance weights and approximately 100 tons of machinery. It will require four 38 horse-power motors and a pumping outfit about one-third larger than the one above described for Archer avenue.

Previous mention has been made in these columns of the fact that the city of Chicago is advertising for bids on four 250 horse-power internally fired boilers for the Lake View pumping station, together with all other appurtenances for a complete boiler plant of 1000 horse-power. All the improvements above named are in the hands of F. W. Blocki, Commissioner of Public Works.

The production of the iron mines of the Grand Duchy of Luxembourg was 6,010,012 metric tons during the year 1903, as compared with 5,130,069 tons in 1902, and a maximum of 6,171,229 tons in 1900. The average price per ton was 2.54 francs during 1903. There were 27 blast furnaces in operation which produced 1,217,830 tons in 1903, as compared with 1,080,305 tons in 1902. Of this quantity 104,720 tons was mill iron, 962,988 tons

was basic pig and 150,122 tons was foundry iron. The three steel works in the Grand Duchy produced for sale 15,474 tons of ingots, 220,805 tons of billets, blooms, &c., and 371,979 tons of finished products.

The Slate Gear Cutter.

The automatic gear or pinion cutter shown in the accompanying illustrations contains an interesting differential gear feeding mechanism. This gives the slow feed necessary for cutting, and provision is made for substituting a direct for the differential action, so that an ex-

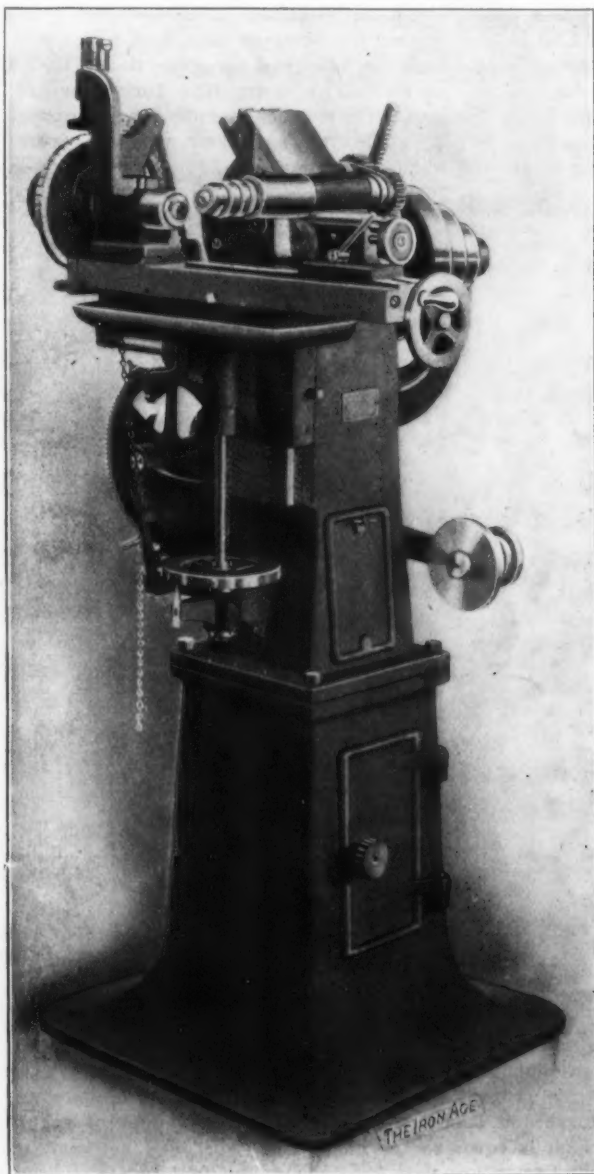


Fig. 1.—The Dwight Slate Machine Company's Spur and Bevel Gear Cutter.

ceedingly rapid return is obtained at the end of the cutting stroke. The machine is designed to cut any style of gear from face to crown, including bevel and miter gears of 16 pitch and even finer. It will cut spur gears up to 4 inches in diameter and as many at one time as can be placed side by side in a space of 3½ inches. The machine is built by the Dwight Slate Machine Company, Hartford, Conn., and is known as the No. 11 full automatic gear cutter.

The work is held in the machine in a fixed position. The tool feeds with the head, which travels in a slide adjustable to any angle between a vertical and a horizontal position, being fixed by means of a quadrant. The head is actuated by a rack and pinion, the rack being reciprocated perpendicularly by the yoke L, shown in Fig. 2. This yoke is bolted into the T-slotted disk H on

the feed gear shaft G. The shaft and its disk feed while the yoke is ascending and the tool is returned during the downward motion of the yoke, one revolution accomplishing both operations. The indexing takes place at the end of the return stroke while the yoke is passing the center of the disk, during which there is practically no movement of the rack. The quick return is too rapid to permit of the indexing during that part of the stroke, except where a very slow feed is used, as in the cutting of steel gears. The throw or length of the feed may be nothing to $3\frac{1}{2}$ inches, and is regulated by altering the position of the bolt in the T-slot of the disk, which holds the yoke.

The feeding is effected by the differential gears C, D and E and the clutch pinion B. The sprocket V, through which power is transmitted to the feed pinion shaft, is connected with the clutch member A, and runs loosely on the shaft. The gear E is keyed to the shaft and the gears C and D are keyed to a stud carried by the sprocket. The pinion B and the two clutch members integral with it run loosely on the sleeve X, and the sleeve

mitting the spring U to act and throw the plug R, which withdraws the feed pinion T from the clutch S. This stops the feed action until the latch is set for another piece of work.

The rate of feed is fixed by the size of the sprocket V. A number of sprockets are furnished with each machine, together with tables to denote the feed to be obtained with each. The ratio between feed and return remains constant.

Canadian Trade.

Britain Dislikes the Antidumping Clause.

TORONTO, November 19, 1904.—British commercial opinion, as reported through trade and newspaper mediums in this country, is opposed to the antidumping clause of the Canadian tariff law. Expressions of disapproval have been coming through the mails to Canadian customers of British houses. It is learned from a number of importers in this country that their correspondents in the

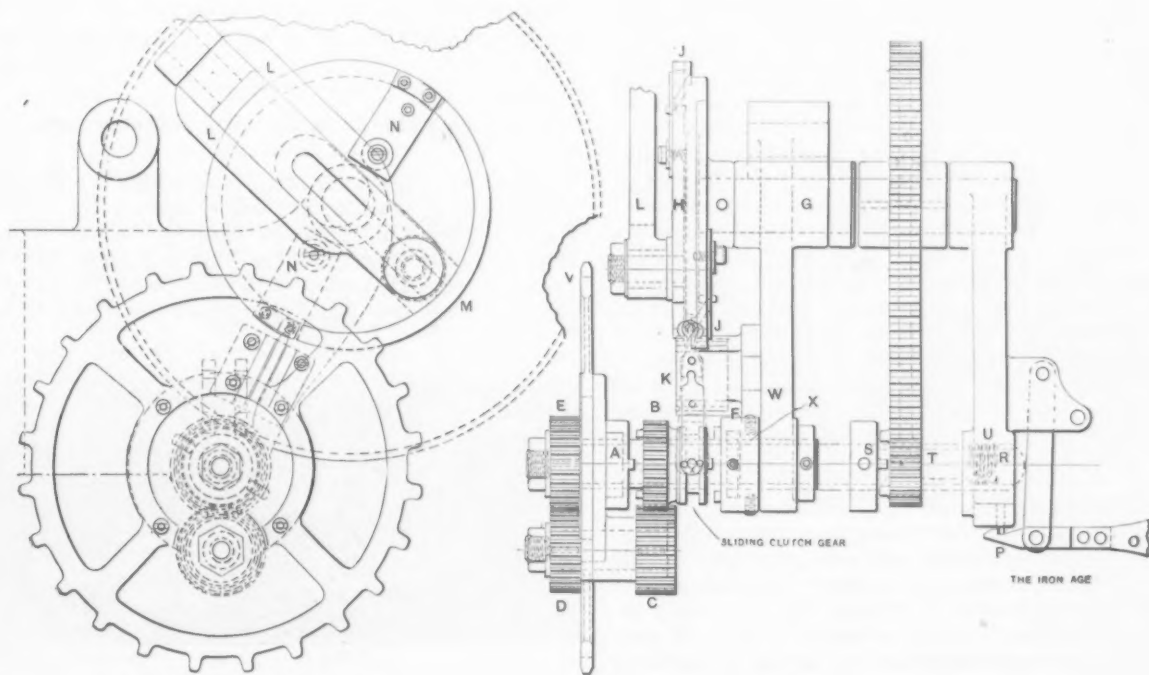


Fig. 2.—Detail of the Feed Mechanism of the No. 11 Slate Gear Cutter.

and clutch member F are fixed to the bracket W. Consequently when the clutch is thrown in at F the pinion B becomes fixed and the gear C, being revolved about it by the sprocket, drives the shaft through the differential gear D. As gears B, C and E have each 26 teeth and gear D has 25 teeth, a differential motion is obtained by which the gear E, and consequently the shaft, makes only one revolution to each 26 revolutions of the sprocket, and this in the reverse direction.

When the clutch is thrown in at A the pinion B is disengaged from F and revolves with the sprocket, which fixes gears C, D and E so that the shaft revolves at the same speed and in the same direction as the sprocket. In other words, it amounts to the clutching of the sprocket V to the shaft. The ratio between the chain feed pinion T and the chain feed gear on the shaft G is 13 to 110, or about 1 to 9, which, taken with the ratio of 26 to 1 accomplished by the differential, produces a ratio of feed to return of 1 to 234, which is practically instantaneous.

The automatic operation of the feed is accomplished through the spring dogs J J on the disk H. At the end of each half revolution of the disk one or the other of the dogs strikes the clutch lever K, throwing the clutch from one position to the other and thus alternating the feed and the quick return. The dogs are maintained in position by the flat springs N N.

At the end of the last stroke in cutting a gear the latch P is released by the automatic pull of a chain, per-

United Kingdom consider the special duty, as it is officially called, to be a very serious check to trading in this market. These correspondents point out that in a free trade country like England it is not so easy to maintain a uniform selling price even in the case of staples, whose conditions of production are most equitable. It is further argued that it is almost a necessity of British trade that prices shall vary not regularly, but in accordance with the momentary state of competition, and that business obtained outside the United Kingdom is usually secured at prices below those current in the country. In short, "dumping" is admitted to be a well established expedient.

Besides the protests sent through these private channels there are others of a more public and concerted character. Thus the antidumping clause and the restricting regulations attached to it have lately been discussed by the Birmingham Chamber of Commerce in terms of disapprobation. At the meeting of the chamber a circular letter from the Liverpool Chamber of Commerce was read on the same subject. In this it was stated that while it was the intention of the new regulations to discourage the selling of goods in Canada at prices below the cost of production, the effect would be to reduce materially, if not to stop, importations into Canada from the United Kingdom. It was the sense of the chamber that such a result would be deplored by the Canadian Government, which had always expressed a

keen desire to promote commercial relations with the mother country.

There were already sufficient hindrances to the expansion of Britain's trade in Canada, the direct one being the proximity to Canada of one of Britain's chief commercial rivals, the United States. When an order is required to be filled in the briefest time the source of supply that is the shortest distance away has an advantage. Beside the saving of time there is the saving of freight. To redress the balance as between Britain and the United States the customs preference was granted to Britain. But in the face of it the exports of United States manufactured goods grew by annual increments, as they had never grown before. Whatever other drawbacks there were in Britain's position, there was that of distrust of Canadian credit. Years ago British exporters had an experience of heavy mercantile losses in Canada, and they have been cautious ever since. They consider that the country lacks one of the main securities of commerce in not having a federal insolvency law. There is insolvency legislation on the statute books of every one of the provinces, but it is not cast on the same patterns. For the most part the creditor is well protected by such laws, though there are loopholes for the dishonest man. What the British exporters do not like is the variation in the several provinces. They have again and again intimated to the Dominion Government that an all-Canada insolvency law is required to secure their confidence.

In so far as the antidumping clause operates to discourage British selling in this country, it will tend to leave more room here for goods made in the United States. Of course, exporters in that country have the antidumping clause to contend with, too, but the volume of their shipments hither at present does not indicate that it is checking their business. Imports from the United States for September amounted to \$15,256,727, of which \$7,241,977 was the value of the dutiable goods. In the three months ending with September the total imports from the United States amounted to \$40,021,874, the dutiable goods in that aggregate amounting to \$20,407,075.

Electrical Smelting.

The report which the Dominion Government's Commission brought back from Europe on the subject of electrical smelting has not been allowed to drop out of sight. Interest in it is kept alive by remarks upon it that appear from time to time in newspapers, some of them discussing the applicability of the method to local ore deposits. How it would work in practice remains to be seen. There is a possibility that a commercial test of it may be made at one of the power centers in the neighborhood of Peterborough, Ont., one of the most enterprising of Canadian manufacturing towns. O. E. Brown, the electrical expert who accompanied the commission to Europe, has recently received a report as to the character of the ore that Peterborough works would be likely to utilize. The ore in question is that of the Belmont mine. The report referred to was prepared by a Toronto man, who had subjected specimens of the ore to a process of magnetic separation. It is stated that the yield of iron from the specimens was from 70 to 71 per cent. Mr. Brown appears to think that iron can be produced in the Peterborough locality at a cost below the \$10 limit named in the commission's general report. That limit was based on calculations which allowed \$10 per horse-power per annum for the electricity and \$7 per ton for coke, and assumed the iron to average 55 per cent. It is estimated that the cost of producing power at Heeley's Falls, near Peterborough, will not exceed \$6 per horse-power per annum, and charcoal at \$4 a ton is considered to be a possible equivalent for coke at \$7, while ore grading above 55 per cent. is expected from the Belmont mine. According to a rough estimate made by Mr. Brown a power plant and electric smelter of 100 tons daily capacity can be constructed and equipped for about \$750,000. Of this amount the greater part would be required for the power plant, the smelting apparatus costing comparatively little. Very great interest in the project is shown by the Peterborough people.

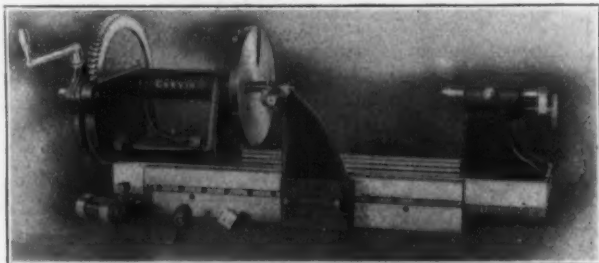
The German Surtax.

Germany's sales in Canada have shown steady declension since the surtax of one-third was added to the regular tariff rates on all dutiable goods entering Canada from that country. A further decline is shown since steel rails were placed on the dutiable list, making the minimum rate as against Germany \$9.33 1-3 per ton, whereas German rails entering Canada had previously been free. There are symptoms of German readiness to have a reconsideration of the commercial difference which caused the retaliation and counter retaliation. The Chemnitz Chamber of Commerce, many of whose members once enjoyed a large trade here, has brought the subject to the attention of the German Government, suggesting conciliatory measures instead of the state of mutual reprisal that now exists. The chamber notes that the apprehensions expressed at the outset have been realized and that the exports to this country have sharply declined. It submits that Germany's objection to an exclusive preference to Britain might be withdrawn so far, at least, as to waive any claims to participation in a 5 or 10 per cent. discrimination in favor of Britain. It remains to be seen whether Germany's former overtures for a reconsideration of the matter will be followed up.

C. A. C. J.

The Garvin Cam Cutting Attachment.

A simple cam cutting attachment which can be used on any milling machine and has a capacity for a wide range and heavy work is now made by the Garvin Machine Company, New York City. The attachment is complete in itself and operates with hand feed. The spindle carries a large face plate, upon which disks may be se-



The Garvin Cam Cutting Attachment.

cured, and is driven by a worm gear of a diameter equal to the largest work that can be swung between centers. When it is desired to turn the work over quickly to any position the worm may be swung out of gear. To allow for handling larger disks than can be swung between centers, the head stock can be set around at right angles to the slide, the work overhanging the edge of the table. The bracket which carries the former pin can be located either on the front or rear, and former plates can be bolted to the face of the worm gear. The work is held against the former pin by a weight suspended by two leather straps. These are attached to the slide and pass over two rollers carried on a bracket, which is furnished to be attached to the slide of the miller on which the attachment is used. The centers will receive work up to 12½ inches in diameter by 16 inches long.

The labor bureau conducted by the Hartford Manufacturers' Association, and known as the Manufacturers' Bureau of Hartford County, is in successful operation in Hills Block, 847 Main street, Hartford, Conn. Arthur E. Corbin, secretary of the Connecticut Valley Metal Trades Association of Springfield, Mass., and also manager of the Connecticut Valley Labor Bureau of that city, is in charge of the Hartford bureau. He has adapted the system inaugurated by him at Springfield to the needs of the Manufacturers' Bureau. This system was described in a recent issue of *The Iron Age*.

The Outlook for Tariff Revision.

Possibility of Action at Extra Session of Congress.

WASHINGTON, D. C., November 22, 1904.—The tariff question has been brought to the front with surprising rapidity as the result of the recent elections, and it is now understood that, even before the meeting of Congress on December 5, a formal conference will be held between the President and Speaker Cannon of the House of Representatives and the Republican leaders of both houses to consider the advisability of taking early steps looking to a very general revision of the Dingley duties. It is not believed an attempt will be made at the coming short session to change the tariff in any particular, except possibly with reference to the duties on Philippine products entering the United States, but if an extra session is to be called next March or April to consider a general tariff bill, the President wishes to reach a conclusion with regard to the matter at an early date and may, perhaps, give a hint of his plans in his forthcoming message to Congress.

Divergent Views as to Revision.

Prominent Republicans returning to Washington for the coming session are diametrically opposed to each other upon the question of the advisability of revision and the views expressed are given with great earnestness. In nearly all cases these opinions are based upon an interpretation of the "verdict of the people at the polls," but those who claim the so called "stand-pat" policy has been indorsed are no more emphatic than are those who insist that the country desires to see the Dingley act "revised by its friends."

In nearly all the statements made here by those who favor revision the metal schedule is singled out as the one most urgently in need of pruning. Representative Babcock of Wisconsin, a leading member of the Ways and Means Committee, and chairman of the Republican Congressional Committee, who is himself the author of an elaborate bill now resting quietly in the pigeon holes of the Ways and Means Committee, was the first of the leading Congressmen to insist that plans should be at once framed for a complete overhauling of tariff rates. As expressing his views on this interesting subject Mr. Babcock has given out a statement which he says he has made with considerable reluctance lest it might appear to jar with the views of his colleagues on the Ways and Means Committee. He says in part:

Representative Babcock's Views

I believe the tariff should be revised promptly and at an extra session of Congress to be called as soon as possible. The only way to handle such legislation is along the lines followed in framing the McKinley bill. It goes without saying that the task should not be attempted at the short session. But it would require so much time as to interfere with the regular business of the long session of the Fifty-ninth Congress, which convenes next December. Congress should be called in extra session. The Ways and Means Committee should give careful hearings before framing the bill for the consideration of the House. No other legislation should be taken up; no other House committees should be appointed. In my judgment, we should devote ourselves solely to that topic and get it out of the way speedily. That was the programme followed in 1897.

I will not attempt to say how much the schedules should be reduced. I doubt if there is any one man in the House of Representatives who could answer it. Personally, I have studied only one schedule, the steel schedule, at which I spent several months. The result of my work was embodied in the revision bill that I reintroduced in the House. I am an ultra-Republican and a protectionist, and I would not reduce the duties on any products below the point that covers the difference in the cost of materials and the price of labor. At present the schedules in numerous instances are considerably higher than is necessary to cover that difference. That is practically the only issue Democrats now have in Congress. They point to the high tariffs and charge that these tariffs are manipulated in favor of the protected interests.

I have never urged a reduction of the tariff as a good way of striking at the trusts. In attempting that we should run in danger of striking at the laborer, whom we wish to protect, rather than the corporation he works for. But I do hold that when we have a 150 per cent. tariff where a 100 per cent. tariff answers all the purposes of legitimate protection, the additional 50 per cent. of protection is likely to be manipulated for the benefit of that protected interest rather than the consumers. With the tariff down to the proper point, any general attempt to elevate prices would be followed by importations from abroad.

As to the necessity, apparently increasing, for more revenue to meet the growing expenses of the Government, I am confident that a reduction of schedules along the lines contemplated would undoubtedly increase the revenue. That holds true of nearly all tariff duties. The present rates, for example, are in many cases prohibitive. The Government derives no revenue at all therefrom. At a lower figure, which would meet all the requirements for protection, there would be importations, and, accordingly, money would flow into the Treasury. The proposed revision by lowering schedules should, in my judgment, increase the revenues 10 per cent., which would suffice for all the needs of the Government.

Representative Dalzell Opposes Revision.

Mr. Babcock's frank statement of his views has been accepted as a challenge by the leading protectionists of the Ways and Means Committee, and Representative Dalzell of Pennsylvania, the ranking member of the committee and the recognized spokesman of the iron and steel industry in the House, has been prompt to take up the gage. He declares that he cannot see any necessity for immediate revision; that the country was never in so prosperous a condition as at present, and that "tinkering with such a delicate subject as the tariff will jeopardize the stability of commercial conditions throughout the country and prevent a continuance of the present era of prosperity." Continuing, he says:

Our foreign trade was never so great and our domestic trade was never of such substantial volume as at present. And what did the people say on this subject on election day? They gave voice by a majority of over two millions that they were satisfied with existing conditions. Had they desired tariff revision they had good opportunity for expressing that view. The Democratic platform committed the minority party to the revision policy. That platform was repudiated by an overwhelming vote.

There certainly appears to be no necessity for an extra session of Congress. We hear talk about an extra session for tariff revision, as we always hear it prior to a national election. But you will find that it originated among Democratic councils. During all this talk we fail to hear of any bill of particulars. No particular schedules are criticised, the general idea simply being for "a tariff revision." Its genesis may be found among members of the party which on election day was practically wiped from the face of the earth. The Ways and Means Committee during the last Congress gave a quietus to the proposition to revise at least one tariff schedule in the present law, and I am of the opinion that the majority members of that committee are still of the same general disposition to suppress any attempt at this time to amend the law.

Chairman Payne Confers with the President.

Chairman Payne of the Ways and Means Committee, after a conference with the President, sounded a note of caution, but made it quite clear that the subject of tariff revision is an open question, which may possibly be settled adversely to the contention of those who share Mr. Dalzell's views. Mr. Payne asserts that it is too early to discuss definitely what action may be taken regarding tariff legislation. He does not think that an extra session will be called, but believes it possible to make any desired revision of the Dingley schedules at the long session of the next Congress. Mr. Payne was among the first to express the opinion that a caucus should be held of the Republican leaders at an early date, and it was after his conference with the President that an intimation was given out at the White House that Speaker Cannon would come to Washington in a few days to take part in the general discussion of the subject.

Senator Aldrich, chairman of the Finance Committee, which has jurisdiction of tariff measures in the Senate, called on the President a day or two ago and discussed the subject of revision, but declined to express any opinion as to whether the matter would be taken up in the immediate future. Mr. Aldrich has been regarded as one of the stoutest of the "stand-pat" element, but now declines to state his views on the subject of revision. Senator Cullom of Illinois, another high tariff advocate, expresses the belief that the time has come for the appointment of a tariff commission. He thinks the recent elections indorse the protective principle and that there is no haste about revision, but he believes that if a commission should be appointed it would take the subject of tariff out of politics and reduce it to a simple business proposition. Of course such a commission could only draft a bill upon which Congress would subsequently be called on to act.

Not an Issue in the West.

Senator Long of Kansas, formerly a member of the House Ways and Means Committee, asserts that the peo-

ple of his State have been misrepresented in declarations to the effect that they are eager for tariff revision. The subject, he declares, was not generally discussed during the recent campaign and is not regarded as a live issue. He urges that the matter should be very carefully considered to prevent disturbing business conditions. He thinks the best interests of the country at large would be subserved by keeping the subject of revision in the background as long as possible.

The most significant feature of the developments since the election has been the very lively interest which the President is showing in the subject of revision. In his talks with public men he appears to take it for granted that the tariff will be overhauled in the Fifty-ninth Congress, and that the only question to be considered now is the time and manner of procedure. At the same time he is not committed definitely to revision and apparently is prepared to give great weight to whatever suggestions Speaker Cannon may offer when he reaches Washington. The Speaker has always been regarded as opposed to revision, and during the campaign argued strongly in favor of the "stand-pat" policy. Mr. Cannon's arrival here, therefore, will be awaited with great interest, and subsequent developments should be watched by the business men of the country with the closest possible attention. W. L. C.

A Magnetic Tool Lifting Attachment for Planers.

An interesting device for attachment to planers, to lift the tool away from the work and hold it out of contact during the return stroke, has been patented by the



A Magnetic Device for Lifting a Planer or Shaper Tool from Its Work During the Return Stroke.

Niles-Bement-Pond Company, New York. The purpose of the device is to avoid the wear on the back of the tool which occurs in ordinary practice when the work rubs under the tool during the idle stroke. As may be seen in the accompanying illustration, the device consists of an electro-magnet, which is incorporated in the clapper box and acts upon an armature suspended by a pair of small links directly in front of the magnet, and astride of a tail projecting from the tool apron. At the end of the cutting stroke, the electric circuit is closed, causing the magnet to attract its armature and press against the tail of the tool box, thus raising the free end of the tool. This action takes place automatically at the moment of reversing, and the armature is again released at the end of the return stroke. The action is timed so that there is no need to increase the length of the stroke, and the device works equally well at all positions of the rail or saddles, and at any angle of the swing. Current is supplied to the magnet from an ordinary lamp socket through an extension cord, which is suspended from the top of the planer. The amount of relief given to the tool is regulated by a set screw from nothing up to its maximum. By the turning of a small switch, the device may be thrown out of action when desired. Its use in no way

interferes with the ordinary working of the tool apron, and the latter can be lifted up while replacing the tools without disturbing any part of the tool lifting device.

The Need of Greater Simplicity in Our War Ships.

At the twelfth annual meeting of the Society of Naval Architects and Marine Engineers, held Thursday and Friday of last week in New York City, George W. Dickie, manager of the Union Iron Works, San Francisco, presented a paper which touched what is, without doubt, the weakest point in our navy and evoked a spirited discussion. This was entitled "Simple Methods in War Ship Designs a Necessity." In the words of the author, modern war ships have now become "complicated combinations of compromises so involved in structure and function as to be quite incomprehensible even to the experts themselves." The explanation given of the existing conditions was as follows:

"1. Uncontrolled growth of new devices for doing the many things for which mechanism is required on these vessels, without the new devices being considered reliable enough to supersede the old. Hence duplication, and, in many cases, triplication of apparatus for doing one thing for which one good device alone should be used.

"2. The system of divided control over the work renders it impossible to have a homogeneous design to begin with that would enable the ship and all that is required of her to be treated as one machine, and provision made at the start for every function being considered with relation to every other function."

As an illustration of the complication created by attempts to improve one feature alone, the following is cited:

"The item of ventilation on ships now building and recently completed has cost on an average about three times what it cost on similar vessels completed three or four years ago, the specifications being worded the same. This one feature in the increasing complication has involved the shipbuilders in a loss on all the ships building when the change was effected of somewhere near \$1,000,000, without any corresponding benefit resulting to the vessels thus hampered with a network of air ducts and electric fans. The condition on these ships has now reached such a stage of complication that a large number of experts is found necessary to get the thousands of intricate devices tuned up for inspection so that everything will function as specified, and to keep them in that condition is, I am afraid, a task beyond the ability of the officers and men in charge of this modern puzzle, and this notwithstanding the great ability of these officers and those under them."

The author also speaks of the apprehension of naval officers over the prospect of increasing complication and multiplying diversity of function of the various mechanical contrivances. The responsibility of properly caring for and insuring the correct operation of these devices is more than they relish. It is his belief that a change must come, resulting in simpler methods, and consequently in greater efficiency in naval vessels.

Thereafter, follow suggestions for simplifying existing conditions to make all parts more readily accessible and easy to understand by such men as are usually placed in charge of them. A feature of the plan proposed is a central passage to be constructed through all battle ships from which the movements and controlling operations may be directed or effected. Diagrams at the back of the paper show a simplified method of draining vessels, which requires four pumping stations on the port side of this passage. As an indication of the reduced number of parts, the following is stated:

"The whole new drainage system requires 60 feet of suction pipe, 160 feet of discharge pipe and 16 valves. This replaces on a similar ship fitted under the present system of drainage 3738 feet of piping in 324 pieces, 444 fittings and flanges, 124 valves, 113 bulkhead fittings and 62 McComb strainers, all of which require the making and keeping tight of 1225 joints."

Another suggestion is the substitution of telephones

for speaking tubes. The difference in space which this would save is strikingly indicated in the statement that the number of voice tubes now required on one of our armored cruisers, if placed side by side with 1 inch space between, occupy a width of 60 feet, whereas the wires for as many telephones could be installed inside one of them.

In discussing the paper, Naval Constructor David M. Taylor, U. S. N., of the Bureau of Construction and Repairs, Washington, criticised it as follows:

"I agree, and I think all naval men do agree with Mr. Dickie, as to the simplicity in the construction of our naval vessels, but unfortunately we face actual conditions that the Russo-Japan war brings home with great force, and I know that we must take a more pessimistic view than Mr. Dickie does. Many of the suggestions made in this paper our navy cannot adopt. We must go slowly and carefully."

He also scored the plans suggested in the paper for drainage, ventilation and coaling.

A full list of the papers presented at the meeting was given in the issue of October 27.

The following officers were elected for the ensuing year:

President, Francis T. Bowles.

Vice-Presidents: Washington L. Capps, U. S. N.; Charles H. Cramp, Robley D. Evans, U. S. N.; Frank L. Fernald, U. S. N.; Philip Hichborn, U. S. N.; Frank E. Kirby, Charles H. Loring, U. S. N.; G. W. Melville, U. S. N.; G. W. Quintard, Charles W. Rae, U. S. N.; Edwin Stevens and Stevenson Taylor.

Members and Associate Members of Council: W. Irving Babcock, W. H. Brownson, U. S. N.; James E. Denton, George W. Dickie, William F. Durand, W. D. Forbes, Charles H. Hanscom, Nat G. Herreshoff, Ira N. Hollis, W. H. Jacques, John C. Kaffer, U. S. N.; Frank B. King, Joseph H. Linnard, U. S. N.; W. M. McFarland, Jacob W. Millar, Albert P. Niblack, U. S. N.; Lewis Nixon, Cecil H. Peabody, Walter A. Post, Harrington Putnam, Horace See, E. Platt Stratton, David W. Taylor, U. S. N.; George E. Weed.

Executive Committee: Francis T. Bowles, *ex-officio*; W. L. Capps, U. S. N.; Harrington Putnam, Lewis Nixon, Edwin A. Stevens, Stevenson Taylor, William J. Baxter, *ex-officio*.

Secretary-Treasurer, William J. Baxter.

Proposed Plan for a Training School for Foundry Foremen.*

It seems to be the consensus of opinion among foundrymen that one of the most pressing needs in the foundry business of to-day is a better class of foremen. When the majority of the foundries were of small size, employing but few men, and making little attempt at anything in the way of systematic records of work done and the cost of doing it, when specifications for the character of materials required were almost unknown, it was sufficient that the foreman should be a skilled mechanic in his line. He is that to-day, usually, but under existing conditions something more is required if our foundries are to be operated in the accurate and scientific manner which characterizes, for instance, the better class of our machine shops. He must be a skilled mechanic, of course, but he must also have a knowledge of metallurgy which will enable him to produce castings of the required composition and physical characteristics at the lowest cost for raw materials. He must have sufficient arithmetical and clerical ability to be able to calculate accurately the cost (for his own department at least) of the castings made. He must be able to keep and to oversee the records of the castings ordered and made, so that he may satisfy the consumer, while operating his foundry at as nearly a uniform rate of production as possible. Finally, in order that he may represent his employer fully and without mental reservation or prejudice in his dealings with the

men in his charge he should be wholly free from any sort of trades union affiliation, either directly, as by actual union membership, past or present, or indirectly, as by social ties or class prejudice.

In order to produce a class of foremen distinguished by the characteristics above stated I propose to establish a foundry which shall be a school for foremen, and in which young men may be trained under a systematic routine for the discharge of all the functions of a foundry foreman or superintendent.

The general plan of such an institution is outlined in the following suggestions, the details of which, however, will probably require modification upon further and more careful consideration.

The students would be graduates or former students of some technical school or college, and would be required to pass a proper examination before admission to the proposed school. They would be required to sign an agreement to remain four years, or such other term as might be decided upon, subject, however, to their satisfactory performance of the work given them to do, and would be paid a fixed rate per day during the term, say, \$1.25 per day for the first year, \$1.50 for the second year, \$1.75 for the third year, and \$2 for the fourth year. The students would do all the work—mechanical, laboring and clerical—involved in the operation of the proposed foundry, under the control of a manager or managing committee, assisted by a few skilled workmen as instructors. It is suggested that at the outset provision be made for 20 molders, which would involve a total force of from 30 to 40 students. Such a shop would probably produce 5 tons of good castings per day, or, say, 1500 tons per annum.

It would not be advisable that the proposed foundry should go into the open market to secure orders for its product, as such a course would involve competition with such of our members as were situated in the vicinity. It is suggested, therefore, that our members be individually solicited to furnish orders for the product of said foundry, agreeing, respectively, to take a certain tonnage during the year. The cost of all such castings should be accurately kept by the foundry and reported in detail to the members for whom they were made. It might be well also that such castings should be paid for at cost, plus the actual fixed charges, which latter might include 6 per cent. interest on capital invested. If this were done accurately no provision would be required for profits or losses, which would be continuously and automatically absorbed. It is believed that in a short time the cost of such castings would be less than that in the foundry of the member for whom they were made, which would insure him a small profit in the transaction, while at the same time the foundry school would be self supporting.

At the outset it might be found advisable to confine the product of the foundry to sash weights or similar coarse castings. A better class of work should, however, be substituted at the earliest possible date.

Should the proposed plan receive the approval and indorsement of the association and its Administrative Council it is suggested that individual members of the association be solicited to subscribe the necessary capital and to guarantee the required product.

As fast as the students should become fit for actual service applications should be received from members of the association in need of such help, preference being given in this regard to subscribers to the capital and users of the product of the institution.

The plan outlined above need not interfere with suggested schemes for the education and training of apprentices for the foundry. Such a scheme, in fact, might at a future date be made a valuable addition to the institution now under consideration. But it is submitted that perhaps the most difficult and delicate feature of any such proposal is the question of securing sufficient tonnage of product for such a shop without unduly interfering with the operations of the foundries of our own members.

From this standpoint it might be better to begin at least with a smaller number of young men, who should acquire the ability to educate the apprentices required in the foundries which might eventually secure their service.

* Presented by Geo. Q. Thornton, St. Louis, before the National Founders' Association, Cincinnati, November 17, 1904.

The National Founders' Eighth Annual Convention.

The New York Agreement Abrogated and Arbitration Principles Adopted.

The Cincinnati meeting of the National Founders' Association marks an epoch in its history. For seven years the association has striven to keep faith with the Iron Molders' Union of North America and to apply the provisions of the New York agreement to disputed questions. But the passing of conservative leadership in the union and the acquisition of power by a more radical element so changed the relations between the two organizations that conditions have arisen which could no longer be endured. It was apparent months since that the old relations were being strained to the breaking point, and at this meeting, after a calm and dispassionate discussion of the situation, it was finally decided by a practically unanimous vote of the members present to abrogate the New York agreement. A declaration of principles was enunciated outlining the policy of the association, and these principles are hereafter to govern the conduct of the relations of the association with labor and labor organizations. War was not declared upon the union, but an advanced step was taken toward the establishment of the open shop. It will be observed upon a careful reading of the outline of policy, given in its proper place in the following report of the proceedings of the Cincinnati convention, that the association, while taking a firm stand regarding restriction of output, restriction of appliances, discrimination among employees and methods of hiring and discharging workmen, does not close the door to arbitration of wages and hours of labor. It is conceded that over these vital points to workingmen it is eminently fair, just and proper to provide a means of settlement in accordance with enlightened sentiment and the progress of the age. The association enters upon its new policy with a full realization of the gravity of the step and the possibilities which it involves, but with an organization stronger than ever in the united stand of its members and in the possession of greater resources with which to bear the burden of whatever may come as the result of that new policy.

THE OPENING SESSION.

The assembly room of the Grand Hotel, Cincinnati, was completely filled with members of the National Founders' Association on Wednesday morning, November 16, when President Isaac W. Frank called the eighth annual convention to order and recognized Henry J. Gosiger of the Eureka Foundry Company, Cincinnati. Mr. Gosiger introduced H. L. Gordon, vice-Mayor of the city, who welcomed the visitors in eloquent terms, to which a fitting response was made by President Frank. Seeing so many present, representing important foundry interests in all sections of the United States and portions of Canada, a quorum was declared by the president without the formality of a roll call. The reading of the minutes was also dispensed with. President Frank then made his report, which was not only an able review of the events of the year but was a discussion of policy from the standpoint of a leader fully competent to weigh the influence of existing forces and sufficiently confident of his ground to point out a remedy for abuses. Opening with the statement that the association had many serious matters to consider at this meeting, he touched upon various matters which have for some time been the subject of controversy with the Iron Molders' Union, and made a number of practical recommendations. A few of the subjects referred to are as follows:

Extracts from President Frank's Address.

Notwithstanding the hope expressed by the committee on a uniform agreement at the last convention of the association, and the hope entertained by the officers when they called for a conference of the Iron Molders' Union for April 7 last that a uniform national agreement might be made which would express some of the inherent rights of the manufacturer, no definite conclusion was reached, and the meeting adjourned without accomplishing its

purpose or even a semblance of its purpose. The committee found that for every proposition presented by it there was an absolute opposition by the union, the claim being that we were endeavoring to make infractions on their organic law. This may be true, if their organic law includes both their written and traditional law, and the tradition is where most of the difficulty arises. It is by word of mouth that the molder is instructed to perform as little work for as much pay as is possible; also that he may not allow a nonunion man to work in the same shop, if the union men are sufficiently strong to prevent it; also to oppose the introduction of piece work on the premium system or any other system that will not enable the molder or core maker to do as little work for as much pay as possible.

The introduction of the molding machine was frowned upon by the union when it was first installed. They are now seeking to have the union molder operate it, much against the wishes of the manufacturer that the molding machine should and must be operated by whomever can give the best output for the least money.

For some time has the Iron Molders' Union pursued the diplomatic motive of making secret contracts with individuals, members and nonmembers of the National Founders' Association, the underlying purpose being to satisfy such firms or corporations that might be strong enough to be troublesome and at the same time endeavoring to alienate such from the National Founders' Association by showing them it is more profitable to be out than in the association. If they can succeed, and through such arrangements weaken the National Founders' Association and cause its final dissolution, it will be a banner day for the Iron Molders' Union, and the special few who through infidelity or selfishness had brought this about are likely to suffer with the rest. If a contract will not bear the light of day it is an iniquitous one and should not be made. Such a contract is always of less advantage to the maker than the standard form which the union denies to our association but offers in a modified form to suit the special case to individuals. This association should put itself clearly on record against such contracts, unless they are disclosed and contain the provisions of the outlined policy.

One of the proposed provisions of the standard form of agreement was the establishment of a standard or basic wage rate, subject to differentials. President Frank stated that he believed this to be one of the most important provisions for the members and for the association, and advised that such a basic hour rate be established. He advocated the equity of all members paying the same graded hour rate for the average floor molder, core maker and bench worker, which rate will apply to such men regardless of the hours worked. Any member who has given thought to the inconsistency of advocating in one locality a different hour rate than in another must have concluded that the association is without a policy in that particular. This country is small enough that each founder producing a similar grade of work is a competitor, whether he be located in hamlet, town or city, and therefore in equity should pay the same rate in his class. The contention of the unions that the city should pay them a higher rate when meeting them in the city and the reverse when meeting them in the country is no less inconsistent, and is only used for "jacking up purposes." The employer, however, who expects this association to maintain a lower rate in one locality to the detriment of another is equally inconsistent, but that is exactly what we have been doing. He advocated the establishment of a rate that is equitable for all localities, taking into consideration what is now being paid, and an average of all of them taken and established, and that a recommendation be made to the new Administrative Council to establish such a rate, either with or without the consent of the Iron Molders' Union, and to pledge the association in its support.

Concluding, he declared the association in a better condition to-day than ever before in its history.

The Secretary's Report.

Secretary A. E. McClintock made his report, stating that 456 firms are now in good standing. When the depression of the past year is considered, the association has done very well. The organization had taken a share in combating strikes in 29 shops the past year in Chicago, Utica, Worcester, Holyoke, St. Louis and Cincinnati. He stated that the certificates of recommendation given to molders by the association have greatly grown in popularity.

The Commissioner's Report.

Commissioner O. P. Briggs read an admirable report. His analysis of the situation of the association a year ago with respect to its relations with the union was clear cut and searching. Mr. Briggs has won laurels for the success with which in his first year in office he has managed campaigns for the National Founders' Association. While he gives great credit to Secretary A. E. McClintock for valuable services rendered, the planning of the campaigns was undoubtedly the work of the chief. In combating strikes the strikers found that a resourceful leader was directing the forces of the employers, who were facing the problem of meeting a depressed condition of business with union strength at its height. Mr. Briggs is as ready with his pen as he is ingenious in the management of labor campaigns. His report was a masterpiece. In it he referred to two problems with which the administration had to deal in the past year. One of these was to complete and round out the official organization so as to have a force sufficient to render competent service to the membership in all emergencies that might arise. The other was that of clearly defining a policy in respect to shop management and all other labor questions, and have the association work steadily toward it. Important progress has been made on both lines.

The four years' effort at attempting a national agreement, uniform in character, applicable to the machinery and jobbing interests of the association, had failed, and the association found itself with a most miscellaneous lot of agreements on its hands. The only agreement of a national character between the members and the Molders' Union at that time was the so-called New York agreement. Great differences of opinion existed as to the wisdom of continuing this agreement, due to the fact that it had been disregarded to such an extent that many of the members felt, instead of its being the peacemaker for which it was intended, it had become a trouble maker of no small proportions.

The striking feature of all the conferences held with the union by virtue of the New York agreement was the persistence with which the union used the deadlocking feature of this agreement to prevent the slightest progress of the proprietors toward the introduction of any change in wage rate or new conditions of improvements. Having thus prevented agreement in any locality, the union would then strike the shops at the first appearance of the slightest change. The conciliation process provided for in the New York agreement seemed thus to have been entirely disregarded in the deliberations of the molder.

The union had its representatives in every town and hamlet where there were molders in sufficient numbers to form a branch, and they were ready to act immediately and forcefully upon the slightest provocation. By virtue of the New York agreement the National Founders' Association was in honor bound to treat with this labor union upon the most trivial matters as well as upon those of greater magnitude. From the inception of the association until just prior to its last annual convention the union had been managed by men who might well be counted as conservative and reasonable, but about that time their management was completely changed and a more radical element came into authority.

The commissioner referred to the fact that the joint conference of representatives of the Iron Molders' Union and the National Founders' Association, at the close of a four days' and four nights' session, found that no agreement could be reached on a single point. The union officials stubbornly opposed the proposals of the foundrymen

and held out unconditionally for every feature of their antiquated constitution and by-laws. At the close of this conference a meeting of the Administrative Council was held, and the conclusion was reached that the National Founders' Association, having devoted four years of unceasing effort to meet the union on common ground and having utterly failed in all its attempts, should now declare its platform in positive terms and should formulate such a policy as would appeal to any fair minded man, meantime resisting local agreements of every nature, except such as were in line with the policy enunciated by the association.

In the various strikes of the year, which were gone over with some detail by the commissioner, it was reported that a new feature had been introduced in the defense of members. The association had employed a certain number of men on annual contracts and had developed a policy of always maintaining a strong force of competent workmen for the assistance of its members. It had been found that there was an apparent necessity for a more complete working force, especially for field work, and a modification of the system of employing molders in supporting the members in times of strikes.

Committee Appointments.

Before adjournment the chairman announced the appointment of the following Committee on Resolutions: Henry A. Carpenter, A. Carpenter & Sons Foundry Company, Providence, R. I.; H. W. Wendt, Buffalo Forge Company, Buffalo, N. Y., and George Q. Thornton, Carondelet Foundry Company, St. Louis.

Announcement was also made that pursuant to the by-laws, the committee on Nominations of Officers, consisting of the chairmen of district committees and the last three ex-presidents, would be expected to prepare its report for submission to the convention.

WEDNESDAY AFTERNOON SESSION.

Chairman Antonio C. Pessano of the Committee on Uniform Agreement presented his report, stating that under instructions from the last annual convention negotiations with the Iron Molders' Union of North America had been continued, but without result. While undoubtedly that union contains many who are actuated by high motives, it is apparent that those who desire fair treatment of employers are now in the minority. A recommendation was submitted that employers make individual agreements with each employee, and that for this purpose a uniform agreement be drawn up to be adopted by the association. In support of this recommendation Mr. Pessano addressed the convention at length, expressing his belief that an agreement can be drawn so equitable in its provisions that a workman can be made to see that he can get from his employer all that he now believes he can get through his membership in the union.

A resolution was unanimously carried adopting the recommendation of the committee, and authorizing a form of agreement to be drawn up and submitted to the Administrative Council at its meeting in the near future, and afterward to be sent to the members for their approval on a referendum vote, to become the agreement form of the association when so approved.

Abrogation of the New York Agreement.

O. P. Letchworth, Pratt & Letchworth Company, Buffalo, N. Y., presented the following resolution:

The National Founders' Association, in convention assembled, does hereby declare:

First, That the New York Agreement, which provides for the settlement of disputes by arbitration, pending which there shall be no strikes or lockouts, depends for its successful enforcement upon the gradual elimination of causes for dispute;

Second, That every effort of this association has been made to provide a contract between employers and employees which should recognize the rights and duties of the one to the other, and has failed;

Therefore, be it Resolved, That the Administrative Council be instructed to advise the officers of the Iron Molders' Union that we are compelled to withdraw from that agreement.

The discussion which ensued was overwhelmingly in favor of the resolution. While one or two instances were brought forward in which the agreement had proved of some service, the general experience had been that it

had merely served as an avenue for making instead of preventing disputes, especially during the past year. The vote on its adoption was practically unanimous.

A resolution was adopted referring to the Administrative Council the question of a uniform basic wage rate, recommended by President Frank.

W. D. Sayle, City Foundry Company, Cleveland, Ohio, presented resolutions setting forth an outline of policy for the association which called out extended discussion, pending the conclusion of which an adjournment was taken to Thursday morning.

The Banquet.

About 200 members of the association and invited guests participated in a banquet, held in the large dining room of the Grand Hotel on Wednesday evening. The arrangements for this function were attended to by a local committee, whose work was so well done as to evoke universal commendation. The tables were arranged in gridiron form, the speakers' table running along the side of the dining room and other tables at right angles to it. Flowers graced the tables. A vocal quartet enlivened the discussion of the *menu*. The *menu* was printed in souvenir form, with apt poetical quotations hitting off each course, some grave and some gay. J. H. Webster, Variety Iron Works, Cleveland, Ohio, was the toastmaster, filling the duties of that exacting position with ease, tact and grace of diction. He first called upon W. D. Sayle, City Foundry Company, Cleveland, Ohio, who had been selected to present President Frank with a testimonial from the members of the association. In discharging this duty he made quite a departure. After a few remarks of an introductory character he gave Mr. Frank a photograph of a very handsome clock and then read a letter just received from Mrs. Frank at Pittsburgh, acknowledging the receipt of the clock itself. He further presented Mr. Frank with a diamond ring as a second installment of the testimonial. The recipient of these tokens of esteem was deeply touched, and replied in words which sank into the hearts of all present as he expressed his appreciation. Hon. George E. Littlefield, Providence, R. I., made a most eloquent speech on "American ideals"; Rev. Dr. Shutter, Minneapolis, Minn., delivered a scholarly address on character, and F. B. Farnsworth, McLagon Foundry Company, New Haven, Conn., gave a most interesting address on methods of handling strikes in Connecticut.

THURSDAY MORNING SESSION.

The convention resumed consideration of the resolutions on an Outline of Policy. After thorough discussion the following was adopted unanimously:

Outline of Policy.

The National Founders' Association, having exhausted every effort during the period of its existence to formulate a uniform agreement with the molders employed in the foundries embraced in its membership, which foundries are accustomed to make agreements with the molders, hereby makes formal announcement to its members of a policy which they are now requested to pursue in the conduct of their foundries, said policy being intended to put into practice equitable conditions, the principal features of which are as follows.

LIMITATION OF OUTPUT.

Arbitrary limitations of output on the part of the molders, or arbitrary demands for an excessive amount of output by the molders on the part of the foundrymen, being contrary to the spirit of equity which should govern the relationship of employer and employee, all attempts in that direction by either party, the molder or foundryman, are to be viewed with disfavor and will not receive the sanction of this association.

LIMITATION OF MAN'S EARNING CAPACITY.

Inasmuch as certain practices insisted upon by labor organizations tend toward counteracting the energy, ability, inclination and opportunity of molders to earn greater compensation than they are now receiving, it shall continue to be the policy of the association not to permit the limitation of a man's earning capacity, whether he is working by the day, by the piece or premium system, thus protecting our workmen in a desire to improve their conditions.

FINES AND RESTRICTIONS.

Believing the action of labor organizations in inflicting upon their members fines and punishments for accepting opportunities of advancement and increased earnings offered by the foundrymen is a practice tending toward a deterioration of the ability of the individual workman, this association hereby reaffirms its determination to prevent the imposition of fines and restrictions placed on a molder for the purpose of handicapping him or re-

tarding him in any way from putting forth his best efforts to produce the best quality and quantity of work in the shortest time and receiving a proportionate compensation.

METHOD OF EMPLOYMENT.

Employees will be paid by the hourly rate, by premium system, piece work or contract, as the employers may elect, and the workman so employed will be required to give a fair day's work for a fair day's pay.

RELATIONS OF EMPLOYEES.

Every workman who elects to work in the foundry of a member of this association will be required to work peacefully and harmoniously with his fellow employees, and to such a workman the freedom of employment shall not be denied.

FREEDOM OF EMPLOYMENT.

It is the privilege of the employee to leave our employ whenever he sees fit, and it is the privilege of the employer to discharge any workman when he sees fit.

APPRENTICES.

The number of apprentices, helpers and handy men to be employed will be determined solely by the requirements of the employer.

APPLIANCES.

It shall be the right of the foundryman to introduce molding machines and appliances of any kind, and to have the same operated by whomsoever he finds to his best advantage to employ thereon.

STRIKES AND LOCKOUTS.

Disapproving absolutely of strikes and lockouts, the members of this association will not arbitrate any question with men on a strike. Neither will this association countenance a lockout on any arbitrable question unless arbitration has failed.

ARBITRATION.

The above principles being absolutely essential to the successful conduct of our business, they are not subject to arbitration.

In case of disagreement concerning matters not covered by the foregoing announcement we advise our members to meet their employees either individually or collectively and endeavor to adjust the difficulty on a fair and equitable basis.

METHOD OF ARBITRATION.

In case of inability to reach a satisfactory adjustment we recommend that the question be submitted to a Board of Arbitration consisting of two of the employees and two persons engaged in the management of the firm or corporation involved, and in case they fail to reach a satisfactory agreement within seven working days a fifth member shall be chosen by these four, and the majority report of the board so constituted shall be final and binding.

In order to receive the benefits of arbitration the employee or employees must continue in the service and under the orders of the employer pending a conference and decision.

In case any member refuses to comply with this recommendation within 30 days after the dispute arises, he shall be denied the support of this association unless it shall approve the action of said member.

WAGES.

Employers shall be free to employ foundry operatives at such wages as may be mutually agreed upon, said rates to be governed by local or shop conditions.

In the operation of piece work, premium plan or contract system now in force or to be extended or established in the future, this association will not countenance any conditions of wages which are not just or which will not allow a workman of average efficiency to earn at least a fair wage.

Other Business.

Resolutions indorsing the work done and the policy pursued during the year by the officers of the association were very heartily commended by representatives of many localities, and were adopted unanimously.

On motion of Wm. H. Pfahler, Abram Cox Stove Company, Philadelphia, the following resolution was unanimously adopted:

Whereas, It has become necessary to withdraw from the provisions of the New York Agreement for the reasons announced in the declaration adopted by this convention; and

Whereas, The outline of policy adopted by this convention provides means for the settlement of differences which may arise between our members and their employees upon subjects other than those which we believe and have announced as indisputable;

Be it Resolved, That we hereby announce our continued belief in the principle of arbitration and our disapproval of strikes or lockouts, and instruct our officers and Administrative Council to favor arbitration with our employees either singly or collectively whenever and wherever it will enable them to establish and maintain just and equitable relations between our members and their employees.

A Special Finance Committee, consisting of G. E. Emmons, Edison General Electric Company, Schenectady, N. Y.; Walter Laidlaw, Laidlaw-Dunn-Gordon Company, Cincinnati, and C. Birmingham, Canadian Locomotive Company, Kingston, Canada, presented a most excellent report, analyzing the accounts of the treasurer, the State

Savings Bank, Detroit, Mich., and showing the association to be in very strong financial condition as well as conducted on sound business principles.

A resolution was adopted that the practice of employing association molders, core makers and instructors be approved and extended.

The publication of the association's monthly *Review* was indorsed.

The dissemination of literature among workmen was referred to the Administrative Council with power to act.

A letter was read from Dr. J. A. Holmes, chief of the Mines and Metallurgy Division, World's Fair, St. Louis, in behalf of the management of the Fair, inviting those present to visit the Exposition. A party was at once arranged.

E. C. Stearns, E. C. Stearns & Co., Syracuse, N. Y., gave a sketch of the work done by the American Foundrymen's League, which is an organization of foundrymen who support open shops. The names of firms who had won strikes and had declared their shops open had been procured, and an effort was made to get representatives of the owners together. A meeting was held at Niagara Falls, August 4, which resulted in about 75 firms entering into an organization which in no way is antagonistic to the National Founders' Association.

THURSDAY AFTERNOON SESSION.

A resolution in favor of the election to honorary membership of those who had rendered services to the association but are now out of the foundry business was referred to the Administrative Council for action.

George Q. Thornton, Carondelet Foundry Company, St. Louis, read a paper suggesting a school for the education of men to become foundry foremen. The scheme embodies the practical operation of a foundry. It was referred to a committee of three to be appointed by the incoming president, for the purpose of inquiring into its practicability and to report to the Administrative Council.

John L. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind., read a paper giving a history of the trade school at Indianapolis, conducted under the direction of the Winona Technical Institute. It embraces a foundry in its equipment, teaches molding and promises to do much in settling the apprenticeship question. It is not a local institution, but is backed by men of prominence in distant as well as nearby localities. He appealed to the members for their sympathy and support. The paper was referred to the Administrative Council.

An invitation was read from the Cincinnati Milling Machine Company to visit its plant.

Election of Officers.

H. W. Hoyt, Chicago, chairman of the Committee on Nominations, presented the report of that committee, which was acted upon for each office in succession. The announcement of Antonio C. Pessano, Great Lakes Engineering Works, Detroit, Mich., for president was received with an outburst of applause, showing the high esteem in which he is held by his fellow members. His election was unanimous, and he was escorted to the chair where he was introduced by Wm. H. Pfahler, Abram Cox Stove Company, Philadelphia. President Frank in a graceful speech welcomed his successor, who spoke at some length on the responsibilities of his new position.

The Canadian membership of the association was recognized by the selection for vice-president of C. Birmingham, Canadian Locomotive Company, Kingston, Canada, who has always taken a prominent part in the work of the association.

F. W. Hutchings, Detroit, Mich., was named as secretary to succeed A. E. McClintock, who was reserved for a more important position. It was decided to continue as treasurer the State Savings Bank, Detroit, Mich., the arrangement having proved very satisfactory the past year. The following district committees were elected:

First District.—George H. Gibby, Gibby Foundry Company, Boston, Mass.; F. B. Farnsworth, McLagon Foundry Company, New Haven, Conn.; F. D. Wanning, Birmingham Iron Foundry, Derby, Conn.; A. W. Whitcomb, Kabley Foundry Company, Worcester, Mass.; John Magee, Magee Furnace Company, Chelsea, Mass.

Second District.—James McNaughton, American Locomotive Company, Dunkirk, N. Y.; R. C. Oliphant, Trenton Malleable

Iron Company, Trenton, N. J.; H. W. Wendt, Buffalo Forge Company, Buffalo, N. Y.; F. E. Wheeler, International Heater Company, Utica, N. Y.; Arthur E. Barlow, Newark, N. J.

Third District.—W. H. McFadden, Mackintosh, Hemphill & Co., Pittsburgh, Pa.; Stanley G. Flagg, Jr., Stanley G. Flagg & Co., Philadelphia; Thomas E. Durban, Erie City Iron Works, Erie, Pa.; John E. Harbster, Reading Hardware Company, Reading, Pa.; Stuart R. Carr, Stuart R. Carr & Co., Baltimore, Md.

Fourth District.—W. D. Sayle, City Foundry Company, Cleveland, Ohio; Wm. Gilbert, Buckeye Foundry Company, Cincinnati, Ohio; H. J. Boggis, Taylor & Boggis Foundry Company, Cleveland, Ohio; W. H. Morgan, Morgan Engineering Company, Alliance, Ohio; R. H. Jeffrey, Jeffrey Mfg. Company, Columbus, Ohio.

Fifth District.—John L. Ketcham, Brown-Ketcham Iron Works, Indianapolis, Ind.; F. C. Schwedtmann, Magnetite Foundry Company, St. Louis, Mo.; Robert Vierling, Vierling, McDowell & Co., Chicago, Ill.; Ward W. Willets, Adams & Westlake Company, Chicago, Ill.; H. K. Gilbert, Buda Foundry & Mfg. Company, Harvey, Ill.

Sixth District.—C. M. Power, St. Paul Foundry Company, St. Paul, Minn.; T. J. Neacy, Filer & Stowell Company, Milwaukee, Wis.; O. B. Kinnard, Kinnard-Haines Company, Minneapolis, Minn.; H. M. Wallis, J. I. Case Plow Works, Racine, Wis.; Geo. H. Smith, Geo. H. Smith Steel Castings Company, Milwaukee, Wis.

Seventh District.—J. M. Taylor, Taylor-Forbes Company, Limited, Guelph, Ont.; Geo. W. Watts, Canada Foundry Company, Limited, Toronto, Ont.; R. J. Whyte, Frost & Wood Company, Limited, Smith's Falls, Ont.; H. Cockshutt, Cockshutt Plow Company Limited, Brantford, Ont.; C. H. Carrier, Carrier, Laine & Co., Levis, Quebec.

Eighth District.—W. D. Tynes, Hardie-Tynes Mfg. Company, Birmingham, Ala.; T. H. Benners, Birmingham Machine & Foundry Company, Birmingham, Ala.; T. J. Watson, Caldwell-Watson Foundry Company, Birmingham, Ala.; H. Blacklock, South Pittsburg, Tenn.; E. Burkett, Southern Engine & Boiler Works, Jackson, Tenn.

Votes of thanks were passed to the retiring officers, local committee and Committee on Nominations.

Wm. H. Pfahler was nominated for honorary membership.

The convention adjourned to meet in 1905 at a time and place to be designated by the Administrative Council.

After the adjournment the new Administrative Council met and appointed O. P. Briggs, Minneapolis, Minn., commissioner, and A. E. McClintock, Detroit, Mich., vice-commissioner.

A feature of this year's gathering was the first annual banquet of the alumni of the association, at the St. Nicholas Hotel, on Tuesday evening, November 15. It was attended by twenty-four ex-officers and ex-members of the Administrative Council and present officers and members. Questions of policy were discussed as well as the *menu*. This banquet is to be given annually.

Sharon Steel Hoop Company.—The Sharon Steel Hoop Company, Sharon, Pa., intends to make some large additions to its plant, comprising a 10-inch mill of the Morgan continuous type, continuous heating furnace, &c. The new departments will not be completed until about June 1 of next year. The plant of this company was built in 1900-1901, and was first put in operation on March 15, 1901. The plant contains one 22-inch three-high blooming and one 8, one 9 and one 12 inch finishing mills, the product being billets, sheet bars, light bars, small shapes and all sizes of steel hoops, bands and cotton ties, the annual capacity being 70,000 tons of billets and sheet bars and 45,000 tons of rolled products. An open hearth plant containing four 25 gross ton Swindell basic open hearth furnaces was added last year, the first steel being made on April 24, 1903. The output of the plant is 70,000 tons of ingots per year. Morris Bachman is president; John R. Hastings, vice-president; J. W. Tedford, secretary, and A. M. Perkins, treasurer.

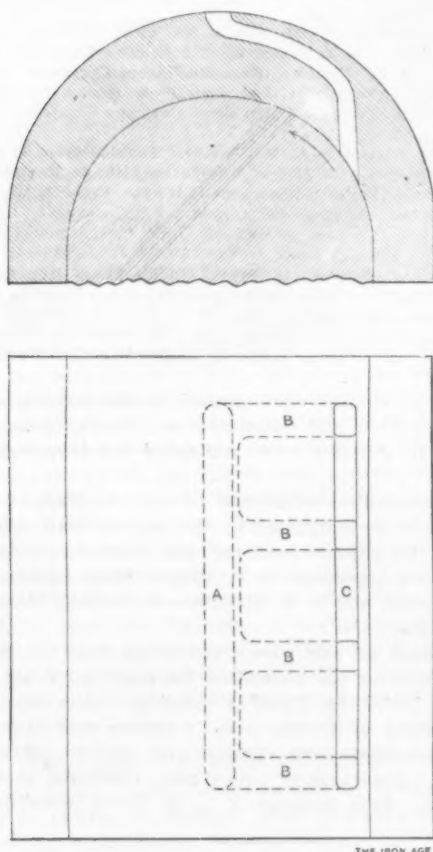
The independent wire mills of New England report business exceedingly good, in many departments requiring night shifts to keep up with orders. The demand for wire comes from many lines of manufacture, as well as for the general purposes for which it is used.

Witherbee, Sherman & Co., Port Henry, N. Y., have decided to build an additional magnetic concentrating plant at Mineville, N. Y. It is to have a capacity of about 1000 tons of ore per day and will handle Harmony

The Stiles Self Oiling Bearing.

A patent was granted recently to Albert C. Stiles, New Haven, Conn., for a journal bearing, which, though especially intended for locomotives, is equally applicable to other machinery and shafting generally, and is worthy of examination. The object of the bearing was to provide for a more even distribution of lubricant to the surface of the journal than is possible from a single oil hole, even when the surfaces of the boxes are grooved. At the same time it was sought to dispose the oil passages so that the bearing would not be weakened at its point of greatest wear.

In the accompanying illustration a view of the bearing from the inside is given and also a cross section



Plan and Section of the Stiles Journal Bearing.

through one of the branch oil ducts. The lubricating material is supplied to the bearing through the groove A and passes through the passages B into the channel C, the walls of which are parallel with the vertical axis of the bearing, so that the relative position of the channel remains unchanged as the bearing becomes worn. The lower edge of this channel is sufficiently above the line at which the bearing usually ceases to fit the journal snugly, so that the lubricant is retained when the journal is at rest. By distributing the oil to the side of the bearing its entire surface is more thoroughly lubricated and the crown of the bearing is left intact, tending to produce more even wear and to increase the life of the journal and the bearing. In other respects the bearing is of the usual form.

If desired this bearing can be cast with two sets of passages and two channels, both of which may be filled with lubricating oil, where the journal is to be run in both directions; or one channel may be filled with tallow, so that if the lubricant becomes exhausted the consequent heating of the journal will melt the tallow in the forward channel and temporarily supply the necessary lubrication. The bearing is made of a special bronze metal which requires no babbitt, and has been used and thoroughly tested on locomotives for several years. It is manufactured by the A. C. Stiles Metal Company, 222 Boulevard, New Haven, Conn.

Chemistry in the Foundry.*

BY DR. R. MOLDENKE.

In discussing this rather broad subject before an association of practical foundrymen it would seem best to take it up from the standpoint of what immediate good it will do each member interested. The foundry owner must be convinced that the use of chemical knowledge in his establishment will bring him direct returns before he feels called upon to change existing conditions and to add another department. Furthermore, once the founder is convinced that it is a commercially wise procedure to work on more rational and scientific lines, he will weigh very carefully the temperament and progressiveness of his shop management so that a radical departure of this kind will not disrupt his organization and leave him temporarily worse off than before.

With the stuff our modern foundry foremen and superintendents are made of there is little danger of opposition to advanced methods, for the eagerness with which the rank and file of the shop have taken hold of the chemistry of iron is in itself a sharp rebuke to the great majority of foundry owners, who profit by the progress made, but are careful not to contribute financially to the further advance of foundry science.

Granted that the careful foundry proprietor, who reads his trade journals regularly and has thus learned that the foundry advance has come to stay, finds that his employees are just as much interested as himself. It remains to see how he will apply the chemistry of foundry materials and processes to the best advantage. This will be the purpose of what is to follow.

The Evolution of a Metallurgist.

It is a mistake to think that the first thing wanted is a laboratory and an analyst to dissect everything bought and made regardless of conditions. This mistake has always brought with it unpleasant consequences and has really retarded progress rather than advanced it. I remember buying a complete laboratory for my own works from a competitor further West, who had put it in, hardly used it and then sold it in disgust. When I first was so fortunate as to get an opportunity to study the chemistry of iron, the far thinking president of the large establishment introduced me as a new clerk. My time was partly spent in routine work, such as keeping records, but I was instructed to keep my eyes open and absorb foundry knowledge. In this way none of the practical hands of the works suspected the radical changes that were to follow. I can truly say I did not myself. The desirability of rearranging the thousands of blue prints which were in constant use at the foundry in question came up, and then it was discovered that I was a draftsman. A little matter of the proper size of pipe for supplying a forge shop with the necessary steam for power developed the fact that I was an engineer. In the meantime some tests on the composition of the bad material of our business rivals required the fixing up of a small room with shelves, water supply, gas and some chemicals and apparatus. Then it dawned upon the troubled shop management that I was a chemist. In the meantime the complete redesigning of the power plant, the introduction of electric light and power, and special problems in the direct manufacture of the specialties we sold had gained me the confidence of all the fair and open minded men on the place, so that when it finally turned out that I was there for standardizing the process and shop methods every one was ready to help me do it. It was then that I became a metallurgist. I owe it not so much to ability, but to the forethought of my employer, who avoided the open or, still worse, secret opposition of the men who were to be benefited while being controlled, by keeping them in the dark until the work spoke for itself. I owe it to the men themselves, who afterward went out of their way to report to me every peculiarity of behavior of the metal in cupola and furnace, wishing themselves to learn the explanation and in reality teaching it to me, as the trained investigator can

* Paper read before the New England Foundrymen's Association, Boston, November 9.

quickly grasp the facts of the case and what they are apt to lead to.

While in the early days of foundry progress along scientific lines this way of getting started was essential to get results that paid, and it is not now so difficult or costly to get the iron end of a foundry on correct lines; yet it is still wise not to go too fast, but to use the cheapest means to the end until the progress made warrants the addition of a complete laboratory department.

Chemistry Profitable in the Purchase of Iron.

The very first place that the chemistry of iron can be made to pay in a foundry is in purchasing the pig iron. The revolution in this respect that our early investigators, and more especially the American Foundrymen's Association, have brought about is hardly conceivable, so far reaching in its effects has it been. To-day over three-fourths of the iron bought is on chemical specification. I am in constant receipt of inquiries from foundries and pig iron brokers alike relative to the specifications for foundry pig iron recently advanced by the American Society for Testing Materials, and since amended at the request of the foundrymen to cover their wants more fully.

Here the foundryman, once he knows what he needs for his work, can specify the analysis required, and is certain of getting a more uniform material than ever he could when iron was judged by its fracture. The variation allowed the furnace before the shipment becomes subject to penalties, or even rejection, is such that a careful spreading of each carload on the last one of the same approximate composition, and drawing from the end of the pile, will give such uniform charges that, with a good melter at the cupola, no anxiety need be had about the metal tapped out daily.

Contrast this with the old way, when worry was written all over the faces of the foundry officials from the making up of the charge until the shaking out of the first castings before going home. I have myself seen 12 different brands of pig iron put into a mixture in small quantities, in order to avoid chances of variation due to a disagreement of the fracture appearance with the actual facts. On the other hand, I have run month in and month out on one single brand of iron piled up in my yard in four lots, with the silicon ranging from 1.75 to 2.50, and never was bothered with complaints from the machine shop or customers.

This may be said to be the first benefit of the chemistry of iron to the founder, and he needs no laboratory for this on his own place, but simply a consultation with some one who knows what he requires in the first place, next careful sampling by a bright foreman or assistant and then a commercial analysis.

I would therefore urge every one present to get him a copy of the standard specifications for foundry pig iron and study them with a view of his next ordering.

The Selection of Coke.

For coke the matter is not quite so far as yet. We all know now that too much sulphur is detrimental. We also know that it is not the appearance and the name of a coke that make its good melting qualities. Even the tough looking by-product article is now recognized as first class, if it is of the proper composition and the burden of the cupola be arranged to suit its structure. A committee is at the present time being formed to study the question of a standard foundry coke, issue specifications for the purchase of this standard, with penalty and bonus for variations therefrom. So in a short time this issue will be dealt with and bring much good to the foundryman.

As it is, you can specify and buy your coke with the sulphur down to 1 per cent., provided the makers will give it to you, and with a good coke or anthracite and uniform iron your charge on the cupola platform is as good as can be made, being the practical application of science directly where it pays well, and all this with a cost of but a few cents a ton added to the iron tapped at the cupola spout. As a simple matter of insurance this added expense should be granted by every foundryman, for it saves many a dollar otherwise wasted and lost, usually at a time when he can least afford it.

The Chemistry of the Melting Process.

I mentioned before that once a founder knows what he needs in the way of the compositions of his irons, he can make his mixtures from the analyses of the irons he buys, and thus keep himself out of trouble. To do this properly he must understand a little of the chemistry of his melting process, so that he can allow for the changes in composition brought about by it in his charges, and it presupposes that he knows the composition of every portion of the iron going in. This means specifically the pig iron and the scrap. The latter is the less certain element of the calculation. If the founder takes only his own scrap, he may get along with an occasional analysis of this, so as to get the proper factor for his mixture calculation. But when he buys a lot of outside material to add to his own sprues and gates, the problem becomes a little more complicated, but requires only repeated determinations of the silicon and sulphur of his daily product, so that this uncertainty may be removed. It is here where it will pay a large works to have a laboratory.

When we come to the specialties, such as car wheels, chilled rolls, malleables, and the like, a correct and safe procedure can only be had by a daily analysis of practically every heat, at least for the silicon. This gives the key to the succeeding mixtures at hand, and the run of successful heats should be practically unbroken. I have had no difficulty in taking off 1000 heats at a stretch without making any bad iron in that time. In fact, it became only a matter of furnace repairs, which were reluctantly made when the iron showed signs of suffering from being compelled to remain in the bath too long for its subsequent good behavior.

Safe Limits Have Been Widened.

I have purposely refrained from going into the effect of greater or less quantities of the constituent elements of cast iron on that material, for this has been ventilated freely by able metallurgists. It seems fitting to say, however, that with the knowledge we have at the present day the safe limits within which we can turn out our daily work have been widened considerably. The correlation of silicon and sulphur, for instance, can be used in such a way that many a brand of iron habitually high in the latter element may find its way into a mixture, properly counterbalanced with silicon, and successful castings made. The proper use of steel scrap in fairly large quantities for the purpose of reducing the total carbon of the metal, and thereby making it stronger, is a direct result of our knowledge of the chemistry of iron. If now we could only add an alloy to such a melt which would have a similar effect on it as does ferromanganese on steel from the converter, a great stride ahead would have been made. I confidently predict that a fortune awaits the man who brings out this material, which would render the art of casting high grade metal still more certain than it is to-day. Indeed, I may say that it would enable us to use irons in both the cupola and the furnace which to-day are put into sash weights. There are problems in the chemistry of iron ahead of both blast furnaceman and foundryman, which we are bound to meet in the next 50 years; for the rich and pure ores now available will be exhausted eventually, and the poorer and more impure ones will have to take their place. If at that time the foundryman is in position to take a high sulphur pig iron and desulphurize it in the cupola process; if he can take a heavy percentage of burnt grate bars or other similar scrap and still turn out high class castings, then he may consider himself as not fallen behind in the procession.

The Air Furnace Growing in Favor.

The growing favor with which the air furnace is being looked upon for regular foundry work is also bound to help the industry. The additional cost of the process is easily counterbalanced by the superior work turned out. One large establishment is beginning to make all its engine castings in this way, and I know of many places where the substitution of furnace iron for the cupola product would mean longer life for castings which must be made of cast iron to be used at all. Founders might, therefore, give this matter some atten-

tion in the near future. It means improving their product in that it keeps the metal from contact with the solid fuel, means less sulphur, less total carbon, greater uniformity in the metal; in fact, all the advantages which gun iron has over the ordinary run of cupola work.

We Americans are said to appropriate every good idea we find on the other side of the water, and so we have taken Professor Turner's discovery of the action of silicon on the carbon in cast iron. We have taken Professor Ledebur's studies of the condition of the carbon in the malleable casting, and have pushed these inquiries far ahead in connection with our daily work. It is gratifying to see that now England and Germany are awakening to the importance of the chemistry of cast iron, and foundrymen's associations are being called to life, whose primary object is to study advanced methods of working. We wish them all possible success, and hope that their transactions may contain much new material that we can appropriate and amplify later on. A rivalry which means the freest interchange of information is a detriment to no one, and stimulates research as well as commercial enterprise. May we learn much more of the chemistry of iron in our foundry practice, and gradually clear away the doubtful portions which still remain to let us feel how little we really do know.

Mining and Metallurgy at the St. Louis Exposition.*

BY H. BAUERMAN.

Foreign Exhibits.

The Mexican collection is essentially a museum of economic mineralogy, the specimens being arranged in showcases intended to be permanently housed in the City of Mexico. These, as may be imagined, are largely silver and gold ores, all the older mining regions being well represented, including plans and sections of the Real del Monte and other famous mines. The iron industry of Mexico, though small, is satisfactorily represented by the contributions of the Monterey Iron & Steel Company and Richard Honey of Zimapan, who sent cases containing small sections of bars twisted and other specimens showing the excellent quality of the material produced.

The Brazilian court has an exceedingly interesting display of the iron ores of Minas Geraes, which, although undeveloped, are remarkable as minerals. The principal ore is an almost absolutely pure hematite in brilliant mirror like plate, and "iron roses" up to 5 or 6 inches in diameter. Magnetite and martite or octahedral hematite are also commonly found. These ores occur in the older crystalline rocks and are remarkable for their stability and resistance to atmospheric change.

This is well seen in a specimen of the secondary limonite, formed by weathering action at the surface. This is made of fragments of the hard slaty ore, connected together by atmospheric rusting, the fragments being but slightly, if at all, altered. It is easy to understand from such examples how the attempt to smelt these dense ores in the Catalan forge was entirely unsuccessful. The new and important industry of manganese mining in Brazil is represented by large and massive specimens, not only from the pioneer establishment of the Usina Wigg at Miguel Burnier, but from several new deposits.

The principal feature of interest in the French court is the model of the Heroult electric furnace in use at Froges, together with specimens of steel and iron produced by the process. These include metal of all degrees of hardness from almost absolutely pure iron to cast iron with 4 per cent. of carbon. The furnace is of the well-known Heroult form, with carbon electrodes of huge section passing through the roof, with the addition of Wellman rockers for casting. The current enters by one electrode, passes into the metallic bath through the layer of slag, forms an arc and flows back through the slag and out through the second electrode, the electrodes being at no time in contact with the metallic bath. It is stated that a 7-ton furnace of the type shown can produce in regular working order about 150 tons of steel per day.

Ferrochromium, ferrotungsten, ferrosilicon and other alloys made in the furnace are also shown, but, unfortunately, the specimens are very poorly displayed, being laid out on the floor, and must be handled individually to obtain any idea of their character. Another series of electrolytic steel and iron alloys is contributed by the Société Electrometallurgique of Albertville, Savoy, but no details are given as to the mode of preparation.

The German court is principally occupied by models which many of the members have already seen at the late Düsseldorf exhibition. These include the beautiful sectional model of the Ruhr coal fields belonging to the Bochum coal owners' fund, the surface arrangements of the Shamrock III and IV pits of the Hibernia Coal Mining Company and one of the workmen's dwelling colony of the Gelhausen Company. In addition to this, a very large amount of detailed information in the shape of drawings, plans and photographs of the housing arrangements of the Krupp Company. Particular attention has been paid to the labor question, as well as to the regulations for the health and safety of miners. A very large amount of literary matter has been prepared in addition. This, however, can scarcely be interesting to the exhibition visitor. The Geological Survey of Prussia shows the detailed survey of several complete districts, as well as geological models on a smaller scale of the Harz, Thuringer Wald and other interesting localities.

The Italian collection, which has been arranged by the Royal Corps of Mining Engineers at Rome, is almost entirely confined to two specialties—namely, sulphur and marbles—both being very thoroughly illustrated. The Geological Survey of Italy sends a large series of maps, including the new detailed survey of the Island of Elba, and there are some fine photographic views of the new blast furnaces and coke ovens at Porto Ferraro.

The Japanese collection is a remarkably full and complete display of the mineral resources of the empire, and the progress made in their systematic study and description by the Imperial mining and geological departments. The largest and most important items are coal and copper. Iron and steel works on a large scale have been erected at Fukoka-Kon, but are not as yet in full work. They are represented by a series of views and a case of sections.

The principal feature in the British section is the collection of specimens illustrative of the mining industry of the United Kingdom exhibited by the Home Office. This was made by Mr. Ware and Mr. Williams of the Mining Department of the Home Office. It is further illustrated by a numerous series of photographs of mine working, both open air and underground. These are mostly by Mr. Williams, with a smaller number by J. C. Burrows. H. W. Hughes' well-known photographs of South Staffordshire mines form an independent contribution. The Geological Survey, through the Education Department, sends a large series illustrative of the recent progress of the Survey. The metallurgical exhibits include two small but effective cases, contributed by the Monkbridge and Farnley Iron Collieries, illustrating Best Yorkshire iron, while Shropshire and Derbyshire are represented by the Lilleshall and Sheepbridge companies respectively. The microphotographs prepared by the late Sir William Roberts-Austen in illustration of the reports made to the Alloys Research Committee of the Institute of Mechanical Engineers form part of the Board of Education exhibit; but the large and important series of the same kind by Messrs. Stead, Harbord and Campion, and the Great Eastern Railway Company, are included in the general exhibition of British scientific photography in the Liberal Arts Building.

The mineral collections exhibited by the Dominion of Canada are very striking and effective. This is partly due to the commanding position and the absence of any inclosing wall, but more particularly to the great variety included and the skillful arrangement adopted. In it will be found coal from Nova Scotia, the western prairie region flanking the Rocky Mountains and the Pacific, iron ores from Nova Scotia, Quebec and Newfoundland, nickel ore from Sudbury and gold from Nova Scotia, British Columbia and the Yukon. Mica, corundum, asbestos and apatite, which are important Canadian specialties, are

* Extracts from a paper read at the New York meeting of the Iron and Steel Institute, October 26.

worthily represented, the mica display being especially fine. There are also some large crystalline masses of feldspar in large regular cleavage fragments nearly 7 feet in length. In addition to the well-known nickeliferous, magnetic pyrite of the Sudbury district, there is an interesting new discovery of nickel and cobalt ores, in which these metals occur as arsenides, together with native silver, an association similar to that of the Saxon and Bohemian mines.

The Dominion Iron & Steel Company.

At the annual meeting of this company, recently held, President J. H. Plummer presented official reports. From the report of Graham Frazer, director of the works, the following extracts are taken:

Iron Ore.—Our chief source of supply is the company's mine on Bell Island, Newfoundland, known as the Wabana mine. We shall take out this year about 315,000 tons, of which 115,000 tons goes to Europe, where it has been sold at fair prices, and the balance to our own works at Sydney. There is a ready market for it in Europe, so that we can always dispose of our ore whenever that is found desirable. The ore costs less than the original estimate.

Limestone.—The valuable deposit of limestone on the company's property at Marble Mountain, on the Bras d'Or Lake, has fully maintained its good quality, and the supply is ample, but the cost has hitherto been too high. Our output for the current year will be about 150,000 tons.

Coal and Coke.—The coal received from the Dominion Coal Company requires to be washed, to reduce the sulphur and improve the structure of the coke, so that it will work economically in the blast furnace. Our coal requirements, with two blast furnaces running, are about 45,000 tons per month. A new washing plant has been erected during the past spring and summer, consisting of two units, each capable of washing 100 tons of coal per hour. It is now practically complete and washing sufficient coal for two blast furnaces. The present 450 coke ovens will not make sufficient coke to run three blast furnaces, but I think it better not to build additional ovens until the effect of the washing plant is fully known.

Furnaces, &c.—The company's four blast furnaces are well equipped with modern machinery; two are in blast, one making foundry and the other basic pig iron. Five of the ten furnaces of the open hearth plant are in operation, and doing fairly good work. The remaining furnaces are being overhauled, and the additional gas producers needed to complete the plant are under construction. The blooming mill is in good condition and of sufficient capacity to roll all the ingots we are likely to produce in the ten open hearth furnaces. In order to get the best results and a sufficient and prompt supply of blooms for the billet and rail mills, it is necessary to remodel and enlarge part of the present heating furnaces. Plans for the work have been prepared, and the improvements may be completed by the time we are ready to operate the rail mill.

Finishing Mills.—The continuous billet mill, which was completed in April, will roll blooms into small billets without reheating, faster than the blooming mill can deliver them. The billet mill supplies billets to the wire rod mill, also 1½ to 3 inch billets for the market. The rod mill, which was also completed in April last, was designed to roll 200 tons per day, but has proved itself capable of turning out 250 tons. This mill has proved highly successful, and is making wire rods of very satisfactory quality. The rail mill now being installed will have a capacity of 500 tons a shift. We expect to be ready to roll rails for next season's demands.

Products.—The company's products now cover the following range:

1. Basic pig iron made from Wabana ore without admixture, the only pig used by us for the manufacture of steel.
 2. Foundry pig iron, made from Wabana ore alone, which produces cheaply an iron of better quality than Middlesbrough, England.
 3. Foundry pig iron of higher quality, similar to Scotch foundry iron, made from Wabana ore with a percentage of low phosphorus ore mixed. The ore used for mixing has usually been brought from Spain; this year we bought 20,000 tons on Lake Superior.
 4. Steel ingots, in manufacturing which pig iron made from Wabana ore alone is used.
 5. Blooms, billets and slabs for sale, and billets for use in rod mill.
 6. Wire rods up to ¾-inch diameter.
- In addition sulphuric acid and the by-products of the coke ovens, tar, sulphate of ammonia, &c., are sold, and before long we shall add steel rails to the above list.

Now that we can supply two blast furnaces with coke made from washed coal we look for an improvement in practice and cost. Steel made from Wabana ore alone has proved to be of good quality; a large tonnage has been manufactured into boiler tubes, boiler plates, locomotive and car axles, angle plates, wire rods, and all other products for which open hearth steel is used. Our whole tonnage could undoubtedly be sold in Canada in the shape of rails, billets and wire rods, but it may be found, later on, advantageous to install the plate mill and 22-inch merchant mill, which the company has already purchased.

President Plummer said: "We have been working

thus far chiefly to improve the quality and to reduce the cost of the pig iron and steel, and to complete the plant, so that the steel may be made into materials that can be profitably sold in Canada; we have partly accomplished what we deem necessary to these ends, and will complete it within the next few months. We look for good markets after the turn of the year. There is a large consumption in Canada, large enough to keep three or four such plants as ours in full operation. On one point I can speak very confidently, and that is the quality of our products. No one doubts the quality of our steel; our wire rods have given entire satisfaction to our customers, and the results of the experimental lot of rails made from the steel confirm our belief that open-hearth rails will be found as much superior to Bessemer rails as open-hearth axles are to Bessemer axles. It has been thought advisable to keep the plant running during the past winter and spring, even if it did no more than pay operating expenses. The company is now doing somewhat better than this, but will not show any material excess over operating charges until the plant is all running."

Vice-President Nicholls spoke of the confidence of the directors in the property, which led them to subscribe for \$1,500,000 second mortgage bonds at par in June, 1903, at a time when the first mortgage bonds were worth little more than half that figure; also of the improvement which has since been effected in the status of the enterprise.

The income account for the year ending December 31, 1903, is as follows:

Net profits of iron and steel department.....	\$341,890
Shrinkage in value of stock of pig iron, steel, &c. provision for bad and doubtful debts, &c., chargeable to operations of 1903.....	226,313
Net profit for year.....	\$115,577
Rentals received.....	8,037
Total net income.....	\$123,614
Deductions:	
Interest on first mortgage bonds.....	\$395,550
Sinking fund on bonds.....	55,800
General interest account.....	131,303
Dividend on preferred stock, April, 1903.....	87,500
Balance, deficit, for year.....	\$546,539

NOTE.—To above deficit, \$546,539, add balance of account for coal department written off (see above), \$245,467; also appropriations for shrinkage in value of materials not chargeable to operating account, 1903, provision for unsettled claims, &c., \$123,634; total, \$915,640; less credit item (reserve and suspense account transferred), \$21,790; and credit to profit and loss, December 31, 1902, \$309,613; balance, profit and loss, deficit, December 31, 1903, \$584,237.

BALANCE SHEET DECEMBER 31.

Assets.		1903.	1902.
Property	\$33,550,045	\$33,465,257	
Cash and accounts receivable.....	404,865	2,491,675	
Materials	1,302,748	2,229,072	
Insurance, taxes, &c., paid in advance	6,181	52,896	
Coal rental, two months, paid in advance		266,666	
Special deposit	260,000		
Profit and loss.....	584,237		
Totals.....	\$36,108,076	\$38,505,567	
Liabilities.			
Common stock.....	\$20,000,000	\$20,000,000	
Preferred stock.....	5,000,000	5,000,000	
Bonds	7,876,000	7,946,000	
Real estate debentures.....	80,000	360,880	
Rolling stock debentures.....		270,879	
Loan secured by second mortgage bonds	405,000		
Mortgages		72,000	
Notes and accounts payable.....	2,422,913	4,274,733	
Interests, dividends, &c., not due....	196,900	204,469	
Contingent fund.....		66,991	
Reserve for replacements.....	127,263		
Profit and loss.....		309,612	
Totals.....	\$36,108,076	\$38,505,567	

Relative to the operations of the current year the president's report says: A strike which lasted from June 1 to July 23 and ended in the return of the men to work on the conditions which had previously prevailed interrupted construction and other work during the best part of the year, but nevertheless satisfactory progress has been made. The company's manufacturing business for 1904 had steadily improved up to the end of May. After that date its progress was interrupted by the strike,

and by continued inactivity of part of the plant waiting on the finishing of the coal washer, and normal conditions are only now being resumed. The experience of the past month justifies the belief that the use of coke from washed coal will increase the output and decrease the costs, and your directors have confidence in the outcome of the business so soon as the company's plant is in full operation."

The Education of the Apprentice.*

A trade school has been started at Indianapolis. The trades offered this year are carpentry, bricklaying, plastering, house painting, electrical work, lithography, foundry and forging. This school is new, but it has good backing and will have an adequate endowment. Its history is brief but interesting.

The United States Government owned 75 acres of land within the city limits of Indianapolis. This land is undulating, covered with forest trees and is beautiful for situation. It was an arsenal, and there are a group of buildings on the land erected by the United States Government at a cost of \$350,000. The Government proposed to give up this arsenal and sell the property. Vice-President-elect Chas. W. Fairbanks suggested that the property be bought for a trade school. (The ground was too beautiful to be split up into town lots and the buildings were too good to be torn down. When the United States Government builds it puts up substantial buildings. It does not build in a rush and use any material or workmen to hurry completion, as is often done by individuals impatient for returns. Uncle Sam has educated engineers in his army officers, who take time to erect and take pride in erecting buildings of the best possible character). A large number of citizens of Indianapolis, appreciating the suggestions of Mr. Fairbanks, bought these arsenal grounds and buildings of the United States Government at public sale, paying therefor \$154,000 cash.

It had been previously arranged that the property would be turned over to the Winona Technical Institute, a school already established, conducting an agricultural institute at Warsaw, Ind. At the head of the Warsaw Agricultural Institute, and now at the head of the Indianapolis trade school, is Rev. S. C. Dickey, D.D., who has enlisted in his work some of the wealthiest men in the West, chiefly from Pittsburgh, Chicago and Cincinnati.

Let me give a brief account of these men, in order that you may see for yourselves that the school has a substantial start. The president of the school is Rev. S. C. Dickey. Suffice it is to say of Mr. Dickey that he was a poor boy, worked his way through Wabash College, borrowing money when a student to aid him and afterward repaying with interest all borrowed money, poor as he was. He started the agricultural school at Winona and managed it with such success that men of large means came to his support. Here are some of the other officers of the school: J. M. Studebaker, South Bend, Ind., first vice-president; H. J. Heinz, Pittsburgh, Pa., second vice-president; H. H. Hanna, Indianapolis, chairman Executive Committee.

J. M. Studebaker you all know to be a man of large means, large sympathy and practical experience in handling boys and men in making vehicles of all kinds. H. J. Heinz is a millionaire deeply interested in the school, as are also Major A. P. Burchfield, H. J. Torrence, H. J. Porter, S. P. Harbison, all of Pittsburgh. Pittsburgh foundrymen know these men, and know that they are men to carry out their plans and have means to push the work of the school to a finish. There are on the Board of Trustees men from other cities, such as Stanley McCormick of Chicago, Walter M. Smith of New York, Alexander McDonald of Cincinnati.

I name these men, not to boast of their wealth, but to demonstrate to your satisfaction that this Indianapolis trade school, called the Winona Technical Institute, is a success from the beginning. Although only a

year old, Dr. Dickey tells me that it has this start, namely: Contributed by Indianapolis citizens, \$133,000, and by others, \$21,000, which money bought the property from the Government; given by Indianapolis citizens and others, 15 gentlemen, \$10,000 each, \$150,000; maintenance fund, 20 men, \$5000 each, \$100,000; Mrs. Phelps of Kentland, Ind., \$25,000. Dr. Dickey assures me he has been shown wills made out by elderly gentlemen with no heirs to the amount of \$2,000,000 to be left to the school.

The names of men in Indianapolis on the Executive Committee and the Board of Trustees are a guarantee of success. I will not take your time for further comment along these lines. This school proposes, among other things, to teach boys to be molders. That is what interests you and me. The school is not a local affair. I have shown you that the United States Government sold the property cheaply because it was bought for a trade school. Senator Fairbanks, Senator Beveridge, and Congressman Overstreet, by their efforts and by their eloquence, induced Congress to let valuable property go for less than it was worth because of the proposed school. The whole United States has thus indirectly an interest in the school. You have stock in it and it will pay you dividends in furnishing you with better molders than you have. The education of the boys in our foundries, under the present system of apprenticeship, is not the best. I need not tell you that. You know it.

I remember some 12 years ago in my own foundry the graduating exercises of the apprentices. Each apprentice as he finished his time was required to treat. The treat consisted of several kegs of beer, which an apprentice was required to buy for the journeymen molders to celebrate his "commencement" as a journeyman. The premium of \$100 earned by the apprentice was thus cut down to \$80, \$20 being spent in such enlightened "commencement" exercises. To do the molders justice, I will say that they were finally amenable to reason and agreed with me that the custom was barbarous and scandalous and gave it up. Nevertheless, there are yet objectionable customs and practices. A trade school will teach a boy not only the art of molding but also good morals, and the art of the "open shop."

The average organized molder, we will assume, has one son. Eight molders have eight sons. One of the eight is permitted to learn a trade. What becomes of the other seven boys? A student of sociology in the Columbia University tells what becomes of them. The situation was carefully investigated in New York. It was found that, although iron molders allowed one apprentice to eight journeymen, marble cutters one to ten, and so on, many labor unions would not allow any apprentices. In consequence there are 150,000 boys between the ages of 16 and 21 loafing about the slums of New York City.

Is there not a need for trade schools? Shall we permit the door of opportunity to be thus shut in the faces of our boys? When a trade school was started in New York ten years ago, it was viciously opposed by organized labor. To-day the apprentice question is one for the trade school, and not for organized labor, to solve.

Let me present the question to you in a concrete form. Let me tell you what has been done by a kindred trade, and thus demonstrate conclusively what can be done by our trade.

The lithographers of the United States found it difficult, well nigh impossible, to get apprentices. Their work they found suffering. The union reserved the right to select the apprentices, and they selected only a few and only such as were amenable to union rules. The atmosphere of union rules and practices was poisonous. I am telling what the lithographers told me. Something, they said, must be done. They decided to start a trade school of their own. But, fortunately for them, this trade school at Indianapolis started up, and the lithographers decided to join hands with Indianapolis, and assist the branch of the school known as the school of lithography. Belonging to this Western Lithographers' Association there are 50 houses from 16 different States. Widely scattered as they are, their interests are centered

* Read by J. L. Ketcham, Indianapolis, before the National Founders' Association, Cincinnati, November 17, 1904.

in this trade school in Indianapolis, with three trustees to manage for them—namely, Julius Gugler of Milwaukee, Chas. B. Goes of Chicago and Louis H. Levey of Indianapolis. Mr. Levey writes me as follows:

I am sending you by to-day's mail a copy of the Winona school of lithography booklet. This branch of the institution will be run under the auspices of the American Lithographers' Association, West, they having three members on the Board of General Directors, and they to have charge of the lithographic school. This assures me that the school will be run along practical lines and that a sufficient number of bright boys will in time be trained into first-class lithographers. The Lithographers' Association, West, will furnish about \$5000 in equipment for this school without cost to themselves. If you are interested on behalf of the Founders' Association I would like to talk the matter over with you at your convenience.

I asked Mr. Levey what he meant by saying that his association would furnish the school \$5000 in equipment without cost to themselves. He was surprised at my question. He thought foundrymen were up to date. "Why," he said, "we went to the supply men and held them up for tools and machinery, etc." I replied that foundrymen knew nothing about "hold up" methods; they were strictly virtuous and would not be guilty of such practices.

Seriously, gentlemen, the success of the Western Lithographers' Association ought to inspire us to do something of the same kind. They started their branch school of lithography. Our school of foundry practice is already started. The object of this appeal is to enlist your sympathy and support. The foundry to which I belong, the Brown-Ketcham Iron Works, has signed an obligation to give \$100 each year for five years for equipment. The cards I would like to have you sign are for maintenance. If each of you will give \$100 a year to this trade school, for maintenance, your \$100 is loaned to some worthy boy to enable him to get through his apprenticeship in the foundry department of the school. He signs a note. The note given by the boy for your money is payable to the school on or before ten years, without interest. Dr. Dickey tells me he worked his way through Wabash College thus, and paid back to the college the money loaned him, and paid it with interest. It was, he says, the happiest day of his life when he paid the last dollar of that note. Very few of the notes are not paid, the doctor says. The boys are taught to be honest. Integrity is instilled into them and they struggle on until every dollar is paid back. Bear in mind, the money is not paid back to you. It is paid back to the trustees of the school and is then loaned to another boy. This is the only perpetual motion machine I have ever heard of. You pay into the Winona Technical Institute of Indianapolis \$100 for one, two or three years as you like, and that \$100 goes to a boy who learns to be an intelligent molder, and, while he learns his trade, is surrounded by Christian influences. After he graduates, and as soon as he can earn it, the same \$100 you gave goes to another boy, and another and another. What a fountain of usefulness you open up! It sparkles in the heart and glistens in the eyes of the lad who gets it. His life is cheered, comforted and made useful; then another heart is cheered and another life made useful—all with this first gift of yours.

We have all read that fascinating story, "The Call of the Wild"—a boy denied apprenticeship by organized labor is surrounded by such adverse conditions that the call of the wild is daily, hourly with him. Idleness soon becomes vice, and the boy, who might have been an honest workman, becomes first a criminal, then a brute. The appeal to us is from the boy himself. Do you not hear his cry? "I am locked out by union rules. Give me a chance in life! Am I doomed to beg, starve or steal?"

The Great Central Railway of England has built a number of freight cars according to the American idea of capacity and size. They are 41 feet 2½ inches long, 8 feet 3 inches wide and 8 feet 8 inches high, and are of steel. The weight unloaded is 33,544 pounds. The carrying capacity is 40 long tons. These cars have about four times the capacity of the usual English type. They are equipped with vacuum brakes, so that they may be run at high speed when desired.

Trade Publications

Planers.—The Chandler Planer Company, Ayer, Mass., has issued an attractive catalogue describing its new planer, designed for use with the high speed tool steels. The company has recently brought out a planer in which the problem of reversing at high speed has been solved, so that any cutting speed up to 90 feet a minute can be obtained. With a cutting speed of 65 feet or less a return feed of 200 feet a minute is obtained, and at speeds of from 65 to 90 feet a return speed of 150 feet is the maximum. The planer has a number of interesting mechanical devices that are shown in the catalogue by half-tones and line drawings. The company is a new one so far as machine tools are concerned, being allied with the Chandler Company, which builds machinery for performing certain processes on fabrics.

Wood Working Machinery.—The American Wood Working Machinery Company, 136 Liberty street, New York City, has recently published a comprehensive catalogue, about 4½ x 6½ inches in size, containing over 300 pages devoted to the line of goods which it manufactures. Various machines are illustrated with small cuts, and a brief description accompanies each. It would be impossible to mention separately the many different machines so shown, but in general these may be classified as borers, matchers, dado, dovetailing and dowel machines; clamps, grinders, jointers, lathes, miter machines, mortis-ers, molders, planers, planers and matchers, sanders, saws of all kinds, shapers, surfacers, tenoners, &c. The book is replete with information of value to those engaged in the industry for which it has been prepared and deserves comment for the admirable way in which this information is placed before the user. As a handy reference key to all classes of wood working machinery this little book will be found an extremely useful addition to the catalogue files of all those interested in such machinery.

"Westinghouse Industries" is the subject of a folder issued by the Westinghouse companies, particularly for distribution in connection with their many exhibits at the St. Louis World's Fair. The book is artistically conceived and forms very interesting reading. Among the companies represented in this book are the Westinghouse Electric & Mfg. Company, a view of its works at Pittsburgh being given, and a number of notable installations made; Bryant Electric Company and the Perkins Electric Switch Mfg. Company, both at Bridgeport, Conn.; Sawyer-Man Electric Company, New York City; Westinghouse Air Brake Company, Wilmerding, Pa.; American Brake Company, St. Louis, Mo.; Westinghouse Traction Brake Company, Wilmerding, Pa.; Westinghouse Automatic Air & Steam Coupler Company, St. Louis, Mo.; Westinghouse Machine Company, East Pittsburgh, Pa.; Westinghouse, Church, Kerr & Co., New York City; Cooper-Hewitt Electric Company, New York City; Nernst Lamp Company, Pittsburgh, Pa.; Union Switch & Signal Company, Swissvale, Pa.; Pittsburgh Meter Company, East Pittsburgh, Pa.; Canadian Westinghouse Company, Limited, Hamilton, Ont.; the British Westinghouse Electric & Mfg. Company, Limited, Manchester, England; Société Anonyme Westinghouse, Le Havre and Frienville, France; the Westinghouse Company, Limited, St. Petersburg, Russia; Westinghouse Brake Company, Limited, London, England, and Hanover, Germany; Westinghouse Electricitäts-Aktiengesellschaft, Berlin, Germany; Traction & Power Securities Company, Limited, London, England. Historically this book is of considerable interest and value and indicates the comprehensive field covered by the allied companies better than any other publication which has been issued in recent years.

Electrical Equipment.—The General Electric Company, Schenectady, N. Y., has recently issued bulletin No. 4381, concerning small plant alternating current switchboards for 1150 and 2300 volts; bulletin No. 4382, on Thompson inclined coil portable indicating instruments; flyer No. 2138, on inclosed fuse cut outs; flyer No. 2139, on small shunt wound C. A. generators, with capacities of ¼ to 1½ kw.; flyer No. 2140, on direct ceiling fan motors, and flyer No. 2134, illustrating ready made electric lighting outfits for decorative lighting.

NOTES.

Bulletin L-601 from the Laidlaw-Dunn-Gordon Company, Cincinnati, Ohio, contains some 20 pages showing several illustrations of the Meyer gear pumping engines. The reading matter gives an interesting dissertation on the engines in general, methods of compounding, valve gear, frame construction and detailed parts. The engines are made with fork frames or with rolling mill type frames and are made cross compound and triplex compound. Other illustrations show certain features in detail, such as valve, gear, frames, crank shaft, connecting rod and cross head.

The Sturgess Governor Engineering Company, West Troy, N. Y., has issued bulletin No. 5 containing an illustrated description of a new arrangement of water wheel governors, these being of the self contained type in which the governor and pump are both mounted upon the same base. These governors were intended primarily for small wheels, where simplicity and inexpensiveness were the prime considerations. For large units the company has adhered to its standard governors, in which the governor, pump and tanks are separate.

J. H. Williams & Co., 150 Hamilton avenue, Brooklyn, N. Y., have prepared an exceedingly attractive little booklet pertaining to their exhibit at the Fair. The cover bears an illustration of the exhibit, and inside are given views of the exterior and interior of the company's plant. The subject matter deals with blacksmithing, and the remainder of the illustrations show panels from their exhibit, on which are mounted innumerable samples of stock and special drop forgings.

The Iron Age

New York, Thursday, November 24, 1904.

DAVID WILLIAMS COMPANY,	-	-	-	-	-	-	-	-	PUBLISHERS
CHARLES KIRCHHOFF,	-	-	-	-	-	-	-	-	EDITOR.
GEO. W. COPE,	-	-	-	-	-	-	-	-	ASSOCIATE EDITOR.
RICHARD R. WILLIAMS,	-	-	-	-	-	-	-	-	HARDWARE EDITOR.

The Policy of the National Founders' Association.

In abrogating the New York agreement the National Founders' Association has taken a very important step. This agreement was the link which connected the association with the Iron Molders' Union of North America, and through the operation of which an effort was made to harmonize the relations of the general foundry trade with their union workmen. It was a manifestation of the desire to conduct the labor question in the general foundry trade on somewhat parallel lines with those which had been established in the stove branch. Much thought and time were bestowed on the New York agreement, which was adopted at a conference of representatives of the two parties in 1899. In view of the interest which now attaches to this document it is herewith reproduced:

Whereas, The past experience of the members of the National Founders' Association and the Iron Molders' Union of North America justifies them in the opinion that any arrangement entered into that will conduce to the greater harmony of their relations as employers and employees will be to their mutual advantage; therefore be it

Resolved, That this Committee of Conference indorses the principle of arbitration in the settlement of trade disputes, and recommends the same for adoption by the members of the National Founders' Association and the Iron Molders' Union of North America, on the following lines:

That in the event of a dispute arising between members of the respective organizations a reasonable effort shall be made by the parties directly at interest to effect a satisfactory adjustment of the difficulty, failing to do which either party shall have the right to ask its reference to a committee of arbitration, which shall consist of the presidents of the National Founders' Association and the Iron Molders' Union of North America, or their representatives, and two other representatives from each association appointed by the respective presidents. The finding of this committee of arbitration, by a majority vote, shall be considered final in so far as the future action of the respective organizations is concerned. Pending adjudication by the committee of arbitration there shall be no cessation of work at the instance of either party to the dispute. The committee of arbitration shall meet within two weeks after reference of the dispute to it.

It will be observed that this agreement is not, strictly speaking, an arrangement for arbitrating disputed points. No provision is made in it for the selection of an odd man in case the two sides, which have equal representation, fail to agree. It was an instrument designed for the purpose of conciliation. When two disputants have equal representation on a board of appeal a decision can only be arrived at by one of the parties becoming convinced that the other is in the right. The board of appeal thus becomes a tribunal for the settlement of questions through their more thorough discussion by parties who may not be directly interested. The difference between arbitration and this form of handling disputes is very great. The odd man on a board of arbitration may be wholly disinterested, thoroughly unbiased and free from prejudice. But a decision given through his vote may fall far short of convincing the defeated party that the winner has the right side of the contention. The New York agreement, with its motive of conciliation, was regarded as the ideal method of avoiding strikes and was adopted for that reason.

In practice, however, this agreement has failed to

accomplish its purpose. Some of its provisions have borne fruit to a limited extent, it is true, but in the great majority of cases in which its aid has been sought for relief by employers it has proved valueless. This has been the case more especially the past year. While conciliation in some branches of trade is practiced, yet even in those, if its results are carefully scrutinized, it will be found that the conciliation is wholly on one side. The employer may be deeply sensible of injuries and abuses inflicted upon him, but with a conciliation agreement he is powerless and his wishes for reform and improvement have no effect. The substitution of arbitration for the New York agreement is expected to work more equitably. A board of arbitration will not simply discuss and disagree, but it will decide. If the employer has justice and reason on his side, he has at least some show of securing judgment in his favor.

In taking this action the National Founders' Association is placing itself in a similar position to other employers' organizations who have found that in dealing with a union as too frequently officered and conducted the union concedes nothing, but perpetually claims a greater share in the conduct of the business which provides employment for its members. Hence arises a very important difference between trade agreements and pure and simple arbitration as proposed by the National Founders' Association. A trade agreement presupposes a general body capable of making such an instrument, as, for instance, an employers' organization on one hand and a union on the other. But in applying the principles of arbitration it is not necessary to deal with a union. An employer can arbitrate a question with his own employees directly by having them name some of their own number to represent them, while he names an equal number of his own executive force to represent his interests, an odd man being selected from outside whenever necessary. The intervention of a union is disregarded by the association, and the fact that it is thus ignored is a long step toward the open shop. But the association does not propose that its members shall hold themselves ready to arbitrate every question which may arise in their relations with their workmen. A firm stand has been taken in the outline of policy adopted at Cincinnati, which only leaves wages and hours as subjects for arbitration. The fact is recognized that a workman's wages and hours govern the compensation for his labor, which is his stock in trade, and that on these subjects he has an indisputable right to make himself heard. Therefore they are proper subjects for arbitration. But matters which concern shop management, shop methods and shop discipline are for the employer to determine. On this principle the association has taken its stand. It is not a radical position. No war upon unionism as such is threatened. But it is such a stand against the unreasonable element in trades unionism as self respecting employers are rapidly finding it necessary to take.

The Progress of the Gas Engine.

The statement of a German naval engineer that the gas engine will eventually replace the reciprocating engine and steam turbine as the propelling agent of war ships has very naturally aroused strong statements of incredulity among engineers of his own specialty. Yet while their opinion may prove to be the correct one, it was only a few years ago that the same discredit was accorded statements that the steam turbine would find a place in vessels of large displacement as a substitute for the reciprocating marine engine. The designers of

engines, both steam and combustion, are making extraordinary strides in developing their respective machines. The enormous compound engines of the great power stations and of the battle ships and liners show very great changes and improvements as compared to the engines of a decade ago, especially in their appurtenances, such as condensers, superheaters and other apparatus for increasing efficiency. So, too, have the designers of steam turbines overcome, one after another, the difficulties that confronted them in producing engines of large power. The combustion engine has gone along at the same ratio of progress, until the horse-power is reckoned in three figures without exciting comment, whereas it was only a few years ago limited to the hundred mark. Even then it was a very imperfect machine indeed, and useful in commercial practice in small units only. In the light of all that has been accomplished and what is known to be under way at the present time, it may not be so astonishing a result, after all, that the gas engine will become a rival of the steam engine, though it must be doubted that it will wholly supersede steam in other than small units, either in war ships or elsewhere.

The German Steel Syndicate and the Outsiders.

The German steel syndicate is having its troubles with critics who claim that it is the deliberate purpose of the magnates to force out of business the rolling mills and factories which are not steel makers. An elaborate official reply has been issued to meet the charge that the smaller mills are seriously hampered in their export trade through the selling of billets and sheet bars to foreign works at much lower prices than the home makers must pay. It is claimed that German labor and German industry are made to suffer because German cheap raw material is available to works abroad which compete in neutral markets with German makers of finished goods.

The steel syndicate denies these allegations, claiming that efforts have been made to keep the export movement of semifinished steel within bounds. By way of proof a comparison is submitted between the shipments for export and for the home market during the period in 1904 when the syndicate was handling the business and the corresponding periods in 1903 and 1902. The periods in question are the months from May 1 to October 1, or seven months:

Steel Shipments, May 1 to October 1.—Metric Tons.

Seven months.	Total.	Home market.	Per cent.	Export.	Per cent.
1902.....	822,762	418,707	54	374,055	46
1903.....	868,512	501,056	57	367,456	43
1904.....	823,930	607,086	73	216,844	27

The managers of the steel syndicate claim that the allotments under the new arrangements are below the productive capacity of the steel works and impose sacrifices upon them. If the full capacity were utilized very large quantities of crude steel might have been "dumped" upon foreign markets at the lowest prices. The syndicate managers take credit for not having followed that policy, but to have prevented overproduction, to have checked dumping of steel on foreign markets and thus to have led to the development of a greater consumption at home.

The syndicate quotes figures to show that the exports of semifinished steel have declined more than the exports of finished products. It is interesting to reproduce these, which cover the period of eight months:

German Exports, Eight Months.—Metric Tons.

	1902.	1903.	1904.
Steel, to England.....	218,447	252,139	125,005
Steel, to Belgium.....	58,198	73,434	71,810

Finished products, bars.....	231,685	240,350	199,362
Plates and sheets.....	172,567	193,278	170,892
Tubes, rolled and drawn.....	33,479	41,837	42,130
Wire	101,883	108,919	112,156
Hardware products.....	47,191	48,688	51,619

It is pointed out that while the exports of steel declined 38.14 per cent. the decline in bars was only 17.05 per cent. and that in plates and sheets 11.58 per cent. In the other products there were slight increases in the exports of 1904 as compared with those of 1903.

The fact is brought out that the falling off in the shipments of steel to Great Britain was compensated for so far as the latter country was concerned by the large exports from the United States, while the decline to Belgium made room for larger exports from France. Therefore the action of the German makers did not put the German "pure" rolling mills at a disadvantage.

The German steel syndicate takes credit, too, for its endeavors to tie up the home markets in the different branches of the finished trades by pooling with the outside mills and rejects rather indignantly the imputation that the mills and factories which do not control the raw material are being put at a disadvantage.

Yet in Germany, like in this country, the conviction is growing that safety to the smaller producer lies in making alliances which will protect him against the evident tendency of the times, or, better still, to absolutely control his own raw materials.

The Wire Goods Trade.

The smaller independent manufacturers of wire are getting farther and farther into the field of wire goods. The wire manufacturer has always produced specialties, such as wires for special purposes, wire springs, and, during more recent years, electrical goods of almost infinite variety. But until quite recently wire goods proper—that is, arrangements of wire wrought by machine or hand, often in conjunction with other material—have been regarded as an entirely distinct line of manufacture. To-day this is changed, and wire mills are working up their products into all sorts of articles and appliances in which wire plays the principal part, though it may be used in conjunction with metal of other forms or wood. In this way the wire mills become less dependent upon the market for the disposal of their products, which are sent into what may be termed the wire factories, to be worked up into special products. The profits of both the wire mills and the wire goods factory are obtained, and frequently the latter profits are proportionately very large. The independent manufacturers state that this evolution of the industry would have taken place even if the competition of the leading producer had not been introduced into the wire market, but doubtless that has had a stimulating effect in inducing means to avoid this competition to as great an extent as possible.

Jug-Handled Sales Contracts.

Makers and sellers of iron and steel products have been so liberal in the extension of contracts that the tendency of buyers has been more and more to ignore the terms of their agreements unless there was a positive financial advantage in living up to them. This condition has reached a stage in finished steel and iron where a contract is little more than an option to buy little or much, up to the maximum limit, at a stated price. When market prices decline below the contract price sellers find it practically impossible to induce the buyer to specify, and when the price advances buyers hold the sellers to the uttermost pound. This condition leaves makers

at sea as to the actual tonnage to provide for, and on a falling market is a source of great loss to such mills as buy or contract at the beginning of a season for raw materials sufficient to execute their end of contracts for finished materials. From the buyer's standpoint a contract is almost an agreement that "heads I win, tails you lose," and sellers, as a rule, are so fearful of losing business that they have not the courage to enforce sales contracts.

This jug-handled arrangement does not prevail to any extent in the pig iron business, and producers and sellers usually enforce contracts which permit of the delivery of the full amount without notice at the expiration of the contract. It is true that even here sellers are, as a rule, magnanimous and give buyers opportunities to extend contracts within reasonable limits. And this liberality is being more and more abused at each recurrence of a falling market.

To the unprejudiced noncombatant it would seem that a contract is a contract and should be enforced to the letter, under all but exceptional circumstances, where the enforcement might lead to the bankruptcy or serious embarrassment of the buyer.

The Winter Lake Ore Supply.

During the past few weeks the point has been brought up with increasing frequency and insistence that there is some danger of a shortage of Lake ore before the new season opens on May 1, 1905. It is urged that the consumption of Lake ore, as indicated by the recent revival in the iron industry, will be much greater than was expected only a month since and that adequate provision has not and could not be made so late in the season for bringing down Lake ores.

Great weight is given to the fact that the shipments during the current season have been much less than they were during the corresponding season last year. This year the shipments of Lake ores to Lake Erie ports have aggregated 14,371,723 tons to October 1, as compared with 18,722,070 tons last year. The shipments to other than Lake Erie ports, including Chicago, Milwaukee, Detroit and a number of Canadian points, aggregated 2,973,047 tons, against 3,630,524 tons last year. This makes the total shipments to October 1, 17,344,770 tons and 22,352,594 tons, respectively, a falling off of 5,007,824 tons.

As against this the fact must be considered that the weather has thus far been very favorable to heavy additional shipments to the close of the season. Close returns show that up to November 19 there had been shipped 2,500,000 tons additional, and an estimate by shippers indicates further shipments to the close of the season of 1,837,000 tons. This, therefore, makes the probable total shipments of Lake ores for the season just approaching its end 21,681,000 tons. Last season they were 23,650,000 tons, so that they will be only 2,000,000 tons below the figure of 1903-1904.

But one cardinal fact is usually overlooked in the study of the situation, and that is that a very large quantity of ore was still being carried by the iron companies on May 1, 1904, when the present shipping season opened. It is stated on the highest authority that the quantity on dock and at the furnaces amounted to nearly 11,000,000 tons of all grades. From this must be deducted as not available except under the stress of extraordinary circumstances a quantity of ore which would bring this down to about 10,000,000 tons. This deduction includes the "inert" ore, which cannot be conveniently reached by the machinery at the blast furnaces and elsewhere and must be picked up at greater expense by hand. Allowance should also be made for the fact that the grades in stock do not exactly coincide in quantity with the furnace requirements.

On the other hand, if necessary, considerably larger quantities than usual could be shipped during the winter

at low rates by rail, particularly for the Chicago district.

The cardinal fact, however, is that the very large accumulation of ore at the opening of the present season far more than counterbalances any falling off in the season shipments and puts out of the question any possibility of a scarcity of ore until the next shipping season opens. The tonnage of ore available for the period of May 1, 1904, to May 1, 1905, represents a pig iron equivalent of over 17,000,000 tons, which is more than any possible boom could call for this winter and spring, considering the fact that production of pig iron was rather light during this summer. The ghost of an ore scarcity should be effectually laid by the facts in the case.

The Duty on Sheet Steel in Strips.

Final testimony in the third attempt of the firm of Hermann Boker & Co., New York, to secure a low rate of duty on sheet steel in strips was put in before the Board of United States General Appraisers on November 16, and it is expected that a decision will be announced in a few days. Whatever way this decision goes it is announced that the case will go for the third time before the United States Circuit Court and the Court of Appeals. Probably no customs case has attracted more attention than the "sheet steel in strips case." It was referred to on the floor of Congress as illustrating the difficulties in the uniform administration of the customs law during the debate on the Payne bill last spring. Judges before whom it has come have commented rather severely on the surprising conflict of testimony which has been developed at the different hearings of the case. So far the Government has got one decision in its favor from the United States Circuit Court of Appeals and the Importers one. The case now under way is an entirely new one, which it is hoped will result in obtaining a final decision.

The merchandise under consideration consists of strips of sheet steel ranging in width from about 1-32 inch to 2 inches and in length from 150 to 300 feet. Most of the strips are less than 25-1000 inch thick. Some of the material is worth as high as \$1 a pound, and much of it is used for watch and clock springs and similar purposes. The importers contend that it is dutiable under the provisions of paragraph 135 of the Dingley law for steel in all forms and shapes not specially provided for at specific rates varying according to value. The Government's contention is that it is dutiable as flat wire at 45 per cent. under paragraph 137. One of the chief issues seems to be whether the strips are produced by rolling in the mill in the form in which they are imported or whether they have been cut from steel plates. If rolled in the mill in their final form it is contended that they are dutiable as flat wire. It is on this point that there has been so much conflict of testimony. The Government has by reference to its records discovered that witnesses for the importers have testified both ways on the same question and that their testimony apparently was varied in order to secure the lower rate of duty for the particular sizes of the strips then under consideration. General Appraiser Fischer, before whom the hearing was held last week, announced publicly from the bench that he had never known of a case before in which evidence so conflicting in character was given by the same person.

Testimony was taken on November 17 on another protest by Hermann Boker & Co. in which the merchandise involved is so-called nickel plated wire. The wire is produced by taking a tube of nickel, inserting an iron wire in it and drawing it down to gauge. It is claimed by the importers to be dutiable under paragraph 137 at the specific rates imposed on the wire from which it is made, with an additional duty of 2-10 of one cent a pound. The Government is contending for a rate of 45 per cent. as wire not specially provided for.

The Colorado Fuel & Iron Company has established a branch office at Oklahoma City, Oklahoma, with L. C. Pond in charge. Mr. Pond's jurisdiction comprises both Oklahoma and Indian Territory.

Lake Mining Matters.

Fresh Interest in Iron Ore.

DULUTH, MINN., November 20, 1904.—Sales are already being made for next year's delivery of standard ores, both Mesaba and old range. The buyers in these cases evidently do not look for any agreement for the year, or else expect one at a good deal higher price than has been the ruling rate this year. Sales of standard Mesaba have been made in round lots. One has been reported here of 100,000 tons and another of 50,000, at \$3.50 per ton. This is 50 cents better than the going price for 1904. These sales are quite significant and important. They are very similar to the present activity in Northwestern white pine. It has been out of the question for Lake Superior lumbermen to sell their coming year's cut until after the new year; indeed, a few years ago the first sales made as early as January were looked upon as extraordinary. But now probably 75 per cent. of the low grade lumber to be cut at this end of Lake Superior and available for Eastern shipment has been sold already, while probably fully 20 per cent. of the high grade of the coming year's cut has also been placed. There is great activity in all raw material productive industries in this part of the country, and iron ore is not by any means the least of these.

An instance of this is found in the reopening of mines that had been closed for the season and the revision of estimates for shipment by several of the large companies. The United States Steel Corporation has been exceedingly active all season in getting ore forward, so much so that many looked on its policy in the earlier part of the year as utterly without reason, but it is now revising schedules and will take advantage of the warm weather prevailing to the last limit, and may send ore forward actively to December 1 from many mines. Such companies as the Republic Iron & Steel Company are increasing their limit in this special case by about 50,000 tons. A year ago, by November 15 winter had set in in earnest; now it is as warm and pleasant as in summer.

Pickands, Mather & Co. are taking several Mesaba explorations under option and are re-examining them for purchase. Their latest option is for a property in section 4-58-05 that had been explored by local men and found to contain about 2,500,000 tons of good ore. The same firm have an option on the Tesora mine, near the Stevenson, west of Hibbing, where there are about 500,000 tons shown up and a larger amount probably to be found of high grade Bessemer ore and very easily mined. The activity of this firm comes since the visit of the American Institute of Mining Engineers to the Mesaba, when the visitors saw how slight ore holdings most of the independent steel making companies had in comparison with those of the big corporation. Pickands, Mather & Co. are working to increase the ore reserves of the Lackawanna Steel Company and to put this company into a position where it will be more secure for the future.

Open pit mines of the Cascade Range, near Marquette, have closed for the season. The Moore mine has been most active in this district and experiments with mining there by steam shovel have been most successful. This method of mining will probably be extended on old ranges the coming year, and arrangements to that end have already been considered at several properties.

Copper Production Heavy.

Lake copper mines are cleaning up their fall shipments of both mineral and refined copper. At the close of navigation the mines will be bare of copper. The monthly production on the lake is now higher than at any time in the history of the industry. For the past two months the average rate of production has been 18,650,000 pounds per month; at the rate of 224,000,000 pounds per year. Of course, the lake will not make any such quantity of copper during the calendar year, as it started the season at a far lower rate. Lake mines are now stamping about 27,800 tons of rock daily, an enormous amount. It is a fact that the average percentage of recovery of copper from lake conglomerate and amygdaloids is not more than 12 per cent., or 24 pounds to the ton. Excluding Calumet & Hecla's rock, which

runs higher, the average recovery is less than 1 per cent., or, to be exact, only 18.8 pounds. This is probably a lower percentage of recovery than the lake has made in the past, and is in spite of better methods and more careful work in all departments. Calumet & Hecla is making at the rate of 75,000,000 pounds a year, and the Copper Range's three mines at the rate of 39,000,000 pounds. Percentages of copper in the rock of the various mines of the region are figured as follows:

Mine.	Tons stamped daily.	Pounds per ton.	Percentage.
Calumet & Hecla.....	5,800	43	2.15
Wolverine	1,050	31	1.54
Champion	1,650	30	1.50
Tamarack	1,900	24	1.20
Mass	400	23	1.15
Balyic	1,950	23	1.15
Ahmeek	50	22	1.10
Michigan	480	21	1.05
Osceola	3,600	20	1.00
Quincy	3,400	19	0.95
Trimountain	1,850	20	1.00
Mohawk	1,500	18	0.90
Centennial	430	18	0.90
Phoenix	200	20	1.00
Isle Royale	500	17	0.85
Winona	120	17	0.85
Adventure	320	16	0.80
Franklin	1,250	15	0.75
Atlantic	1,400	13	0.65
Total.....	27,850		

The most important addition to lake production for the coming year is the Champion, which is now arranging for six stamps and will by early summer be in readiness to stamp about 31,600 pounds a day, giving it a monthly product of about 2,700,000 pounds. The mine is now operating four stamps.

Preparing for Increased Ore Tonnage.

Contracts for new ore dock work for the Duluth, Mesabe & Northern road, at Duluth, have been let for about \$300,000. No. 3 dock is to be doubled in length and capacity. This is the highest and shortest dock in the company's system, also the newest, and when it was built was intended to be increased, in accordance with the present plans, as soon as conditions demanded. The dock is 67 feet high, 59 feet wide and 1152 feet long and has a capacity for the storage of 40,320 gross tons. The increase will give the road a storage capacity of 207,000 tons. This dock is the highest and widest on the lakes, except Nos. 2 and 3 of the Great Northern at the head of the lake, which are 73 feet high and 62.33 feet wide. It is found that the increase of high freeboard ships of great capacity demands docks with their load far higher from water than the old types. Contracts for the extension of No. 3 dock of the Duluth & Iron Range road, which is to be constructed, have not been let. This when completed will make that road's total ore dock storage 190,000 tons. The two roads are now in the market for 1100 pressed steel ore cars, hopper bottom, 100,000 pounds capacity, with 19-foot wheel base, 24-foot centers, and will be able the coming year to practically do without wood ore cars. The change will greatly increase the seasonal capacity of the roads. They are also in the market for 11 heavy locomotives, standard type.

All these additions, as well as heavy equipment orders that have been made of late and others that are pending, point to the expectation of a very much increased tonnage the coming year. But it is not probable that it will reach the 30,000,000 gross tons that many sanguine ore men now seem to expect. If it is better than 26,000,000 tons it will surprise me.

D. E. W.

Tests made upon a 500-kw. Curtis turbine and a 1250-kw. Westinghouse-Parsons turbine give some indication of the general distribution of the losses in dynamic energy which the steam undergoes between the point of admission and the exhaust. These are tabulated below in percentages of total energy accounted for:

	Curtis.	Parsons.
Work available at shaft.....	50	62.8
Loss in final velocity of steam.....	14	12
Friction of wheels in chambers.....	6.2	6.3
Nozzle losses.....	6	
Loss in buckets, spreading and leakage.....	14.8	11.9
Radiation	3	7

Naval Estimates for Congress.

Secretary Morton Asks for \$114,530,638 for Next Year.

WASHINGTON, D. C., November 22, 1904.—The Secretary of the Navy has approved the estimates for naval expenditure for the fiscal year ending June 30, 1906, which will be transmitted to Congress on December 5. The total appropriation asked by the department is \$114,530,638, or \$17,372,447 more than the amount granted by Congress for the current fiscal year. Of this increase new items aggregate \$6,452,234, while the remainder represents augmented expenditures for current maintenance. The figures submitted by the Secretary do not include any allotment on account of the new vessels, the construction of which Congress will be asked to authorize.

Increase of the Navy.

The new building programme involves no less than 16 ships of war, including 3 battle ships, 5 scout cruisers, 6 torpedo boats and 2 squadron colliers, the estimated cost of the 16 vessels being \$41,300,000. Whatever disposition Congress may make of this recommendation for the increase of the navy, no part of the cost thereof will require to be paid out of the appropriations to be made at the coming session, as no payments thereon would fall due prior to June 30, 1906. The department's plans for battle ships of greater size than the Connecticut and her class have been abandoned after a very exhaustive investigation, and unless Congress couples the appropriation with some special requirement such battle ships as are authorized will be built substantially on the plans of the Connecticut and Louisiana, recently launched at the New York Navy Yard and at the yard of the Newport News Shipbuilding & Dry Dock Company, respectively.

The increased estimates of the Secretary of the Navy are designed to place the entire service on a better footing, but especially to equip the various navy yards and naval stations so as to enable them to turn out the largest possible amount of work in the most economical manner. In fitting up the yards and stations the present plants are to be supplemented by such tools and machinery as will bring the equipment thoroughly up to date, Secretary Morton's view being that it is scientific economy to provide the very best facilities for the execution of Government work and to employ such methods and general practice as would be followed in a strictly first-class private establishment.

Special Estimates.

For the Bureau of Ordnance the estimate is \$5,103,506, as compared with \$3,676,706 for the current year. The principal item is for the production, purchase and handling of ordnance material—\$3,500,000, as compared with \$2,500,000 for the current year. Other leading items for this bureau are estimated for as follows: Purchase and manufacture of smokeless powder, \$500,000; machine tools, Portsmouth, N. H., Navy Yard, \$5000; machine tools, New York Navy Yard, \$6300; machinery for existing shops, naval gun factory, Washington, D. C., \$150,000; machinery for proposed sighting shop, naval gun factory, \$150,000; boilers for gun factory, \$50,000; locomotive and machinery for locomotive house, \$20,000; reserve torpedoes and appliances, \$150,000; reserve guns for auxiliary cruisers, \$125,000; reserve guns for ships of the navy, \$200,000.

For the Bureau of Yards and Docks, including navy yards and naval stations, an appropriation of \$7,755,615 is asked. Of this sum about \$1,000,000 is for general maintenance, while the balance is for the purchase and installation of machinery, tools, power plants, the erection of buildings, the extension of sewage systems, the construction of ships, docks, quay walls, &c. The estimates for expenditures at the principal navy yards and naval stations are as follows:

Boston Navy Yard.—Total estimate, \$418,810: including sewer system extensions, \$29,840; paving, \$50,000; railroad system extensions, \$25,570; track for traveling crane, \$34,210; electric elevators, \$15,000; foundations for steam engineering tools, \$4260; on account of dry dock, \$100,000; pier for 100-ton shears, \$60,000.

Charleston (S. C.) Navy Yard.—Total estimate, \$807,000:

including continuing dry dock, \$250,000; quay walls, \$150,000; approach to dry dock, \$114,000; equipment for workshop, \$10,000; extension railroad system, \$10,000; railroad equipment, \$10,000; machinery for power house, \$50,000.

League Island Navy Yard.—Total estimate, \$597,500: including retaining wall, \$100,000; sewer system extensions, \$19,000; railroad system extension, \$17,000; locomotive crane track, \$25,000; storehouse for steel, \$28,000; locomotive crane, \$7500; pump and boiler for dry dock, \$2000; pier extensions, \$40,000.

Mare Island Navy Yard.—Total estimate, \$280,900: including railroad system extension, \$20,000; electric plant extension, \$15,000; tools, \$2000; sewer system extensions, \$5000; electric workshop extension, \$10,000; heating system extension, \$10,000; piers and slips, \$50,000.

New York Navy Yard.—Total estimate, \$999,200: including water front improvement, \$750,000; paving and grading, \$15,000; railroad system extension, \$15,000; electric plant extension, \$20,000; railroad equipment, \$10,000; underground conduits, \$10,000; sewers and drains, \$10,000; heating system extensions, \$75,000; scale house and scales, \$6000; auxiliary hoist for 100-ton crane, \$20,000; copper shop, \$28,000; paint shop, \$32,000.

Norfolk Navy Yard.—Total estimate, \$372,000: including railroad track extension, \$5000; piers and slips, \$100,000; electric plant, \$20,000; locomotive, \$6000; conduit system, \$15,000; improvement to 100-ton shears, \$15,000; sewer extensions, \$5000; plumbers' shop, \$75,000; electric elevator, \$4000.

Pensacola Navy Yard.—Total estimate, \$393,000: including power house, \$44,500; tools, \$2000; water system, \$25,000; sewer system, \$20,000; machinery for central power house, \$50,000; foundry, \$70,000; railroad track and equipment, \$10,000.

Portsmouth Navy Yard.—Total estimate, \$565,900: including railroad and rolling stock, \$10,000; sewer system extension, \$10,000; quay wall extension, \$100,000; piers and slips, \$25,000; fittings for dry dock, \$35,000; coppersmith shop, \$16,000; boiler shop, \$78,000; pattern shop, \$24,900; coaling plant, \$30,000; naval prison, \$70,000.

Puget Sound Navy Yard.—Total estimate, \$385,500: including sewer system extensions, \$5000; electric light plant extension, \$20,000; railroad and equipment extension, \$6000; boat shop, \$25,000; water system extension, \$3000; heating system extension, \$6000; locomotive crane and trap, \$30,000; car float and landing slip, \$20,000; piers, \$50,000; machinery, \$2000; pattern shop, \$40,000.

Washington (D. C.) Navy Yard.—Total estimate, \$328,220: including conduit system, \$10,000; building for electric power plant, \$75,000; locomotive and crane house, \$62,000; railroad system extension, \$10,000; platform scales, \$11,000; heating system extension, \$8000; water system extension, \$25,000, and steel timber shed, \$40,320.

On behalf of the Bureau of Construction and Repair an appropriation will be asked of \$8,410,024, as compared with \$8,595,824 for the current year. Of this estimate \$7,983,000 is designed to carry on the work of building vessels now under way. In addition the construction plants at the principal yards are to be improved by expenditures as follows: Portsmouth, N. H., \$20,000; Boston, \$30,000; New York, \$30,000; League Island, \$20,000; Norfolk, \$15,000; Pensacola, \$20,000; Mare Island, \$20,000, and Puget Sound, \$30,000. Other general equipment for the yards mentioned is estimated to cost \$200,000. These estimates of the Bureau of Construction and Repair are separate and distinct from those submitted on behalf of the Bureau of Yards and Docks for the same yards and stations.

A very considerable increase in the appropriation is asked on behalf of the Bureau of Steam Engineering, the total being \$4,322,720, as compared with \$3,572,900 for the current year, the principal items including construction, purchase and repair of machinery and boilers, \$2,590,000; purchase and handling of mail, \$1,500,000; experimental work of engineering laboratory, \$25,000. Improvements in the steam engineering plants at certain navy yards are estimated for as follows: Portsmouth, \$100,000; New York, \$50,000; Pensacola, \$25,000.

On account of the increase of the navy \$45,255,833 is asked, as compared with \$31,826,860 appropriated for the current year. This estimate includes construction and machinery, \$30,410,833; armor and armament, \$14,000,000, and equipment, \$845,000. This estimate on behalf of the increase of the navy is intended to cover the cost of the work to be done in the fiscal year 1906 on vessels already authorized by Congress, and is exclusive of the equipment of yards and plants to carry on the routine work.

W. L. C.

Some excellent records for production are being made in the Brown-Bonnell Works and also in the Bessemer steel plant of the Republic Iron & Steel Company at Youngstown, Ohio. The Bessemer plant is averaging nearly 1700 tons of billets per day.

Notes from Great Britain.

The Markets.

LONDON, November 12, 1904.—The improved condition of the Cleveland warrant market, although largely speculative, has had a marked effect upon both sellers and buyers in the consuming districts. Pig iron is unmistakably hardened, and, further, greater confidence is engendered. The mills are busier and at the time of writing it may be said, without exaggeration, that the average output of pig iron is going into consumption on contracts. It is certainly one of the most curious and unexpected events, this growing activity in the British iron and steel market. How far it is permanent I would not venture to prophesy. Indeed, the Scottish steel makers this week have reduced ship plates by 2 shillings 6 pence to £5 12s. 6d., less 5 per cent. The movement started with a decidedly better tone at the Birmingham quarterly meeting, which was followed by an announcement from Scottish blast furnace owners putting up rates by 1 shilling per ton. It was supported by a conviction that further American competition in pig iron was not to be feared during the current year, and received further strength when it became known that the tendency in America was rather to withdraw offers of semimanufactured material than to press them upon unwilling buyers. It might be oversanguine to call the movement a "revival of the iron trade," but it may be fairly described as a possible preliminary of a revival. The course in the warrant iron market has been fairly favorable throughout the month. Prices opened for October Cleveland warrants in Glasgow at 43 shillings, and this is the lowest quotation for October. The closing rate was fractionally over 44 shillings, and the progress upward has been steady. For three months' warrants as much as 44 shillings 7 pence has been paid, indicating a substantial belief in the future. In Scotch and hematite warrants very little has been done, and the latter class of iron is probably the weakest in the trade.

An important feature in the history of the month is the agreement which has been arranged between the Scottish and east coast steel producers to avoid undue competition between the two sections of the industry. It was thought in some quarters that prices would be put up as a result of this agreement, and possibly this may happen later; but at present the scarcity of work induces makers to postpone any such action. Although American steel is perhaps out of the market for some time, if not definitely, there is still a danger of German competition, and the very large importations of German semimaterial are a warning of what may happen if prices of British metal should stiffen. Recent reports from Germany, however, encourage the hope that the worst of German competition has been seen, and that business conditions in that country are improving. The Welsh iron industry has been prosperous throughout the month so far as tin plates are concerned. Robert Crookes & Co. of London, in their circular dated October 28, refer to the "huge orders" for tin plates that have been placed for delivery right up to March, and in some cases up to June next. "Those consumers who have neglected to place their forward requirements will have to pay the full advance. American and German bars are dearer, and this adds to the general firmness. Tin plate demand has now overtaken the supply." Some of the Welsh steel works are reported, nevertheless, to have found considerable difficulty in disposing of their output at what they consider satisfactory prices, and there is now a tendency toward approximation in the prices of Welsh and foreign semimaterial, which may considerably alter the position of affairs before the end of the year.

The Internationalization of the Iron Warrant.

Considerable interest is evinced over here as to the possible effect of dealings in pig iron warrants in America. It is thought by some shrewd observers that the American warrant movement has reacted favorably on the British market. It is certain that a fortnight ago Wm. Baird & Co., Limited, the big Scottish ironmasters, advanced all their special brands 1 shilling per ton, notwith-

standing the fact that there is but little improvement in the home demand. It would appear, therefore, that the advance in price is speculative.

It is a little curious that the inauguration of the warrant system in America has taken place at a time when the Glasgow ring has a combined stock of less than 125,000 tons. Smelters do not nowadays go on making iron, however dull the demand, and placing their surplus in warrants. In former days they worked on their own ore deposits and were compelled in a way to keep their mines running. But now the native ores are practically exhausted in Scotland, and as the smelters use imported ore they can easily discontinue buying ore and blow out their furnaces, instead of making iron for store, as in the old days. It is not quite the same in Cumberland, of course, where the native hematite ore is smelted, but it seems a pity that the make of Cumberland pig iron has been reduced before the imports of foreign steel, because if the output had been maintained hematite iron would have been cheaper, and our steel makers could have faced the foreigner with domestic material. In Cleveland the smelters use both native and foreign ores, and not all of them have their own iron stone mines, so that there also production can be reduced in bad times by reduction in the purchases of ore. However, it is believed that a large quantity of Cleveland iron is held under advances in makers' yards instead of being converted into warrants.

On July 16 last a new form of warrant was agreed to by the Scottish Pig Iron Trade Association at the request of the London Metal Exchange. This is to represent "Standard Foundry" pig iron as apart from Scotch G. M. B., Cleveland ordinary, and Cumberland hematite, hitherto dealt in as warrants. It was first proposed to make "Standard Foundry" a special dealing, to be intimated at time of contract—that is to say, "Standard Foundry" iron is optional, not compulsory, with any buyer who does not engage to take it when he buys a warrant. Now "Standard Foundry" iron for purposes of the new warrant contract is so defined as to cover American makers' iron, and not only iron in the Glasgow and Middlesbro warrant stores, but also iron landed at Liverpool, Manchester and elsewhere.

The German Steel Syndicate Arrangements.

The organization of the German Steel Syndicate came into effect on October 1 of this year. To make matters clear it may be interesting to subjoin the actual announcement made by the Stahlwerks Verband of Düsseldorf, who say that on October 1 they appointed as their sole agents for the United Kingdom the German Steel Works Union Agency, Limited, of London, to whom inquiries and orders should be sent for the following descriptions of steel: Beams and channels of 80 mm. and above; steel rails, sleepers and accessories; half products, such as billets, blooms, sheet bars, &c. All other materials will, as heretofore, be sold direct by the agents for the respective works. The combination is composed of the following firms: A. Cartledge, Henry Dicke, Otto Goessell, Max Korten, H. Koenigs & Co., Edward Lomer, August Reichwald, Cecil M. Sanders, W. S. Vellinghausen & Co., Witting Bros., Hermann Wedekind, Rud. Wolff, Kreuger & Co., Zeitz & Co., and Emil Zweigel.

The Midland Wages Board.

Since the meeting of the Midland Iron & Steel Wages Board a few weeks ago, when the operative section gave notice to terminate the wages sliding scale, important developments are stated to have taken place threatening the very existence of the board, the remarkable circumstance being that the source of danger now emanates from the employers instead of from the operative section. After the meeting in September a number of employers became anxious in consequence of complaints by the men that in numerous instances employees of outside firms were receiving a considerably lower rate of pay than those under the board. As a result a number of the firms constituting the board have privately intimated their intention not to allow the present state of partial representation of the trade on the board to continue, and if the outside firms do not come into connection with the board they will withdraw.

S. G. H.

OBITUARY.

DR. THOMAS M. DROWN.

Dr. Thomas M. Drown, president of Lehigh University, died on Wednesday last at South Bethlehem, Pa., after having undergone a surgical operation. Dr. Drown was born March 19, 1842, and was educated at the Philadelphia Central High School, where he graduated in 1859. He then took up the study of medicine and three years later received the degree of M.D. from the University of Pennsylvania. After a brief period of practice as a physician, he turned to chemistry as his life work. Three years were spent in Germany in the study of chemistry and metallurgy, partly at the School of Mines at Freiberg and partly under Professor Bunsen at Heidelberg. He subsequently established himself as an analytical chemist at Philadelphia, and removed in 1874 to Easton, Pa., to become professor of chemistry at Lafayette College, where he remained for seven years. In 1873 he was elected secretary of the American Institute of Mining Engineers, and retained that position by unanimous re-election until he resigned it in 1883. When Dr. Drown resigned his chair at Lafayette it was to enter upon private practice as a chemist. This work went on for five years, and in 1887 he became professor of chemistry at the Massachusetts Institute of Technology, whence he came to Lehigh University in 1895. From 1887 to 1895 he was in charge of the chemical department of the investigation of the natural waters of Massachusetts. He was chemist of the Massachusetts State Board of Health from 1887 to 1895, and consulting chemist since. It was under his jurisdiction that the Lawrence, Mass., filtration plant, long regarded as a model plant, was built, giving the town an unpolluted water supply. Dr. Drown was a member of the American Philosophical Society, Philadelphia; of the Academy of Natural Sciences, Philadelphia; of the American Academy of Arts and Sciences, Boston; of the Boston Society of Civil Engineers; of the New England Water Works Association; of the American Chemical Society; of the British Iron and Steel Institute; of the Society for Chemical Industry, England, and honorary member of the Berzelius Society of the Sheffield Scientific School of Yale University. Dr. Drown was appointed in 1890 a member of an international committee to devise standard methods for the chemical analysis of iron and steel, and he personally made analyses to aid the discussion on this subject. In recognition of these labors and of his services to the American Institute of Mining Engineers, he was elected in 1884 one of its honorary members, and in February, 1897, he was made its president. The degree of Doctor of Laws was conferred upon Dr. Drown by Columbia University in June, 1895.

NOTES

AUGUSTUS J. LIGGETT, a member of the firm of Liggett & Brothers, iron and steel manufacturers, Pittsburgh, Pa., died November 20 in the City Hospital at Atlantic City, N. J. Mr. Liggett was also interested in banking in Pittsburgh and was a prominent member of the Masonic order.

JACOB MARK, a member of the Vault Light Mfg. Company, New York City, and one of the oldest manufacturers of architectural iron work in the country, died November 16, aged 70 years.

NELSON STOW, the inventor of the flexible shaft, died November 27, at Binghamton, N. Y., aged 76 years. He built and operated the first street car line in that city.

The Warrant Market.

Trading in pig iron storage warrant certificates, which was begun on the New York Produce Exchange Monday of last week, is exciting considerable interest among iron merchants, several of whom have lately joined or signified their intention of becoming members of the exchange for the purpose of dealing in iron through the medium of warrant certificates. The total transactions thus far have not been large, amounting to upward of 3000 tons. Of this amount 1000 tons were sold on the first day of trading, November 21, and 1400 tons on Tuesday of this week. In November delivery 200 tons were sold at \$16.20 per ton. In January

delivery 200 tons were sold at \$16.25 per ton, 100 at \$16.50, and on Tuesday the price advanced to \$17.25, at which 800 tons were traded in February delivery, 100 tons were sold at \$16.65 per ton, 100 tons at \$16.70, 100 tons at \$16.75, and in sympathy with the rising market prices advanced to \$17.25, at which figure 300 tons were sold, as were also 300 tons for March delivery. April prices advanced from \$16.55 to \$17, 100 tons at each price being traded in. Last week 500 tons for May delivery were sold at \$16.30 per ton. The following are the quotations at noon Wednesday:

	Bid.	Asked.
December	\$17.00
January	17.00
February	17.10
March	17.00	\$17.50
April	17.10
May	17.00	17.50
July	17.00	17.50

PERSONAL.

Edward Lavery, superintendent of the steel department of the Wood Works of the American Sheet & Tin Plate Company at McKeesport, Pa., has been appointed to a similar position at the open hearth plant of the company at Vandergrift, Pa.

Clarence K. Crossan has resigned as secretary and treasurer of the New Haven Iron & Steel Company, New Haven, Conn., in order to engage in business in Philadelphia. He has been succeeded by his brother, Arthur B. Crossan.

A. M. Fowler, formerly identified with the Union Iron Works Company, Springfield, Mo., in the capacity of superintendent, has resigned that position to become vice-president and general manager of a newly incorporated industry known as the New Phoenix Foundry & Machine Company, also of Springfield. Associated with him in the new company are George H. McCann, president, and John Schmook, secretary and treasurer.

George F. Morse has been elected president of the Fitchburg Machine Works, Fitchburg, Mass., manufacturer of metal working machinery, succeeding F. B. Manville, resigned.

Willard N. Sawyer, formerly of Wheeling, W. Va., and of Ensley, Ala., and recently with the Wellman-Seaver-Morgan Engineering Company at Pittsburgh, has been appointed general manager of the Lake Superior Corporation of Sault Ste. Marie, Ontario.

Edward T. Stotesbury, a director of the Cambria Steel Company and of the Pennsylvania Steel Company, has become senior resident partner in Philadelphia of the firms of Drexel & Co., J. P. Morgan & Co. and Morgan, Harjes & Co.

On January 1 Lewis Brown, for some years superintendent of the Upper and Lower Union Mills of the Carnegie Steel Company in Pittsburgh, will resign in order that he may devote his time to personal interests. Mr. Brown has been connected with the Carnegie Steel Company for more than 25 years and a few years ago was made a partner. H. J. Schotter, now superintendent of the plate mills of the Homestead Steel Works of the Carnegie Steel Company, will succeed Mr. Brown as superintendent of the Upper and Lower Union Mills. W. M. Becker, recently superintendent of the 48-inch plate mill at Homestead, who was transferred a month ago to take charge of the new tube mills now building by the National Tube Company at Lorain, Ohio, has been transferred back to Homestead and will succeed Mr. Schotter.

The La Belle Iron Works.—All departments of the plant of the La Belle Iron Works at Steubenville, Ohio, are now in full operation, with a very large tonnage booked ahead. The plant includes two blast furnaces, with a daily capacity of about 800 tons, a basic open hearth steel plant containing twelve 50 gross ton furnaces, pipe mill and plate mill, all at Steubenville, and a large cut nail plant at Wheeling, W. Va. The annual capacity is about 250,000 gross tons of pig iron, 300,000 tons of basic open hearth billets, sheet and tin bars, 120,000 tons of universal plates, 180,000 tons of flat bars and skelp, 60,000 tons of specialty plates and 300,000 kegs of steel cut nails.

MANUFACTURING.

Iron and Steel.

On November 15, at a meeting held at Du Bois, Pa., the Adrian Furnace Company was organized to operate Adrian Furnace of the Rochester & Pittsburgh Coal & Iron Company, with the following directors: Adrian Iselin, Jr., Arthur G. Yates, Lucius W. Robinson, B. M. Clark and Thos. W. Kennedy. The stack, which has been shut down for a short period for relining, was blown in November 20. The officers are Thos. W. Kennedy, president and general manager; Lucius W. Robinson, vice-president; Geo. H. Clune, treasurer; F. G. St. Clair, secretary and assistant treasurer; J. G. Miller, general sales agent, exclusively in charge of sales, with headquarters at Du Bois.

Some excellent records for output have recently been made in the open hearth plant of the Clairton Steel Works of the Carnegie Steel Company, at Clairton, Pa. In four weeks recently this plant, which contains 12 50-ton open hearth furnaces, turned out 46,200 tons of steel.

The Muscatine City Water Works, Muscatine, Iowa, is in the market for about 25 tons of lead, 1000 pounds of Russian jute packing, 25 tons of corrugated rods and about 50 tons of structural steel, such as girders and I-beams.

We can state officially that the report that the United States Steel Corporation is negotiating for the purchase of the plant of the Youngstown Iron Sheet & Tube Company, at Youngstown, Ohio, is incorrect.

The Hirsch Rolling Mill Company, St. Louis, Mo., has recently completed important improvements in its rolling mill at Ecoff avenue and the Missouri Pacific tracks, giving it better facilities than previously for the manufacture of bar iron and steel, angles, sheets, spikes, billets, light rails, &c. The same company is doing a large business in scrap iron and steel, relaying rails, fastenings, cars and equipment and second-hand machinery and supplies of all kinds. Members of the firm report that business, particularly in old materials and second-hand machinery, is exceptionally good.

The Shenango Works of the American Sheet & Tin Plate Company, at New Castle, Pa., which has been idle for some time, started up in full on Monday, November 21. This is the largest individual tin plate plant owned by that company, and contains 30 sheet and 30 pair furnaces, 8 annealing furnaces and 30 26 x 32 inch hot and 30 22 x 34 inch cold mills, the product being black plates for tinning and the annual capacity 60,000 gross tons.

The works of the Reading Iron Company at Danville, Pa., have resumed operations in the skelp department, after an idleness of many months. The plant employs upward of 800 men.

The Birmingham Steel & Iron Company, Birmingham, Ala., has purchased the ingot equipment of the old Henderson steel plant, at North Birmingham, and is now turning out small steel ingots for the Southern trade.

The Ohio Steel Works of the Carnegie Steel Company, at Youngstown, Ohio, is slated to turn out this week 1700 tons a day of billets, sheet and tin bars, which is an increase over the daily output for a number of months. The rail mill at this plant is idle now and it is not known when it will be started.

General Machinery.

It is said that \$200,000 of the paid-up capital stock of the Farmers' Co-operative Harvesting Machine Company was represented at the annual meeting, which was held November 7 at Springfield, Ohio, to complete the organization and elect directors. It is the intention to erect a large plant for the manufacture of farm implements of all kinds, particularly binders, reapers and mowers. The plan of the company is to furnish its stockholders with what they may need in the way of agricultural machinery at a discount of 10 per cent. from the regular price. The following directors were elected: O. E. Bradfute, Louis Laybourne, Wm. N. Whitely, R. L. Holman, C. F. Jackson, John Begg, John L. Gilligan, Benj. Howell and Wm. N. Whitely, Jr.

The Phoenix Iron Works has been incorporated at Winona, Minn., the capital stock being \$10,000. The officers of the company are: President, Albert A. Brandt; secretary and treasurer, George A. Polley; manager of foundry, Frank J. Brom; manager of machine shop, Chas. Bergier.

The city of Springfield, Mass., is planning the erection of a technical high school to cost \$225,000. It is understood that the building will be given a complete equipment of machinery and tools for manual training purposes.

George A. McKeel & Co., Limited, Jackson, Mich., manufacturers of steel sarven flanges, seamless and brazed ferrules, point bands, shaft taps and specialties in drawn and stamped metals, have added to their factory equipment a department which will be devoted exclusively to the manufacture of roller bearings for vehicles, automobiles and shafting, having purchased from the Scheffler Roller Bearing Company, Jackson, all its machinery, patents, patterns, &c. The McKeel company has added largely to this equipment and will make the new department up to date in every respect.

The Toledo Pipe Threading Machine Company, Toledo, Ohio, owing to the rapid increase in the demand for its threading machines, will shortly erect and equip a new plant for their production. These machines, although but two years on the market, have reached a popularity unprecedented.

Contract for the new plant of the Red Jacket Mfg. Company, maker of cylinders and pump supplies, Davenport, Iowa, has been let to the Tri-City Construction Company. The buildings which will be erected comprise a foundry, 100 x 200 feet; a machine shop, 80 x 200 feet; a rattling room, boiler house and pattern vault, all to be built of brick. Equipment for the foundry has not yet been secured. The machine shop will not be completed until next spring, at which time machinery from the present factory will be transferred to the new building. The company expects to run its foundry full capacity, melting from 15 to 20 tons of iron a day.

T. C. Kenney has bought a site for a foundry and machine shop in Connellsville, Pa., and work on the erection of a building 72 x 120 feet will soon be started. The new plant will be located near the works of the F. A. Black Cutlery Company, which are

Power Plant Equipment.

The Warren Steam Pump Company, Warren, Mass., which recently purchased the patterns and drawings together with other assets of the Slater Engine Company of Warren, is installing a 1000 horse-power engine at the Seneca Cotton Mills, Seneca, S. C., and has recently rebuilt an engine for the Whittier Mills, Chattahoochee, Ga. The Warren Company has in its employ the drafting room force of the Slater Engine Company, together with many of the old employees.

The Lee Paper Company, Vicksburg, Mich., has just ordered a 200-kw. Northern generator for the equipment of its new mill. This is the most recent in a long series of sales of Northern apparatus in paper mill work, the most prominent installation being the plant of the Consolidated Water Power & Paper Company, Grand Rapids, Wis., in which are operated a quantity of Northern motors of all sizes as well as two 300-kw. direct current generators. The Consolidated Water Power & Paper Company's plant contains, among other motors, two large single voltage variable speed motors operating from the mill power circuit and giving speed variations from 300 to 500 revolutions per minute, corresponding with machine speeds of 50 to 500 feet per minute.

Charles Jacobson, Warren, Pa., maker of Jacobson automatic gas engines, has received an order from G. Elias & Bro., Buffalo, N. Y., for a 250 horse-power horizontal tandem gas engine which has a number of new and valuable features.

The plant of the H. E. Hass Gas & Gasoline Engine Works at Beaver Dam, Wis., is being transferred to Fond du Lac, where quarters have been secured in the Buffalo-Pitts Building. A portion of the machinery has already reached Fond du Lac, and it is expected that the remainder will be received and erected ready for operation within the next two or three weeks. The company makes stationary and marine engines of 1½ to 4 horse-power capacity.

The Battle Creek Iron Works Company and the Coburn Machine Company, both of Battle Creek, Mich., have consolidated, the new company to be known as the King Gas & Gasoline Engine Company. Stock has been issued to the extent of \$100,000, all paid in. The line of manufacture will consist of gas engines for motive power and for fire engines, the plant of the Battle Creek Iron Works being utilized for manufacturing operations. New officers of the company have not as yet been elected, and until they are chosen Sylvester Greusel, secretary of the old Battle Creek company, will have charge of the affairs of the consolidated company.

The recent fire at the foundry of the Brown Corliss Engine Company, Corliss, Wis., did very little damage and will cause but slight inconvenience in operation. The loss is covered by insurance. The shops are running the same as usual and will continue to do so, while the foundry will be running again inside of three weeks.

The Chicago, Rock Island & Pacific Railway Company is using the Admiralty oiling system on all the machinery in the large power station at its new shops. The J. H. Siegrist Company, 14 Christopher street, New York, will cheerfully give particulars of this system.

The Manhattan Smokeless Furnace Company, New York, has been incorporated with a capital stock of \$150,000, to place on the market a device for burning soft coal without smoke. The apparatus has been successfully tested in several power plants. The company will shortly place on exhibition one of its furnaces in operation. Address W. H. Smith, 150 Nassau street.

The Ft. Wayne & Wabash Valley Traction Company has decided to build a power plant at Lafayette, Ind., to cost \$200,000. Charles Murdock, Lafayette, is vice-president of the company.

Foundries.

The United States Cast Iron Pipe & Foundry Company, New York, expects to make some improvements to its plant at Bessemer, Ala.

G. Malden Beard of the firm of Miller & Beard, Glenville, Pa., has purchased Mr. Miller's interest in the business, which

will be conducted under the name of the Beard Foundry Company.

The Cambria Foundry & Machine Company, Johnstown, Pa., has made an assignment for the benefit of its creditors. This step will in no way interfere with operations at the plant, as the assignee is to continue the business.

The Bridgeport Malleable Iron Company, Bridgeport, Conn., has filed a certificate in Connecticut providing for an increase in capital stock from \$200,000 to \$4,000,000. This has been done to enable the company to work out ideas along progressive lines, but the company states that these plans have not yet taken such definite shape as to warrant a statement concerning them at the present time. The officers of the company are: President, William A. Grippin; vice-president, Harris Whittemore; treasurer, William J. Grippin, and secretary, Henry Atwater.

Sabel Brothers, Jacksonville, Fla., inform us that they are in the market for some 10, 12 and 15 inch black wrought iron pipe.

The Franklin Works of the American Steel Foundries, at Franklin, Pa., have been started up after being idle for some months.

W. H. Cook & Co., Winston-Salem, N. C., are erecting a new foundry, 60 x 75 feet, at Greensboro. The equipment has been secured.

The American Graphophone Company, Bridgeport, Conn., has let the contract for its new foundry, which will be 63 x 148 feet, of brick and steel.

Schaum & Uhlinger, Philadelphia, Pa., contemplate building an addition to their foundry, but it has not been decided whether the extension will be erected now or in the spring.

During the past week the Wheeling Mold & Foundry Company, with its enlarged plant at Wheeling, W. Va., made its first shipment of castings for the new Pennsylvania Railroad tunnel under the North River at New York, on which contract the concern has been working for some months. This company has a contract to supply 30,000 tons of these castings, which are to form part of the outer shells of the tubes.

Bridges and Buildings.

The Sprague-Davis Iron Works, Chicago, has recently been organized. The officers of the company are H. B. Alexander, president, and M. C. Davis and E. S. Sprague, vice-president and secretary, respectively, who were formerly associated with the Globe Iron Works. The company makes all kinds of iron work for buildings.

Contracts were closed at Evansville, Ind., November 17 for eight steel bridges, as follows: Lafayette Engineering Company, Lafayette, Ind., four bridges, aggregating \$3583; Massillon Bridge Company, Massillon, Ohio, one bridge, \$640; J. W. Bedford, Evansville, Ind., one bridge, \$990; Vincennes Bridge Company, Vincennes, Ind., two bridges, \$1390.

The Union Machine Company, Zanesville, Ohio, has been awarded a contract for a steel bridge to be erected over Jonathan River, at South Zanesville. There were 13 bidders for the contract.

The National Bridge Company, Indianapolis, secured a contract for an \$11,000 bridge from the Board of Public Works of that city.

The Indiana Bridge Works, Muncie, Ind., will spend about \$60,000 in enlarging its plant.

Fires.

The machine shop of M. Liverman & Co., Economy, Pa., was recently destroyed by fire, entailing a loss of \$18,000.

On November 20 the greater part of the brick plant of Grim Brothers, Allentown, Pa., was destroyed by fire. The loss is placed at \$30,000.

The plant of the Friction Pulley & Machine Company, Fort Edward, N. Y., was recently damaged by fire to the extent of \$15,000.

The ollecloth factory of Levi Nickerson, Gloucester, Mass., was destroyed by fire November 17, with a loss of \$20,000.

The malt house of the Frank Jones Brewing Company, Portsmouth, N. H., was destroyed by fire November 17, with a loss of \$150,000.

The Pott & Bastine foundry, at Pottsville, Pa., was destroyed by fire Monday. The loss is about \$6000.

The two plants of the Pyle National Electric Headlight Company at Seventy-fourth street and South Chicago avenue, Chicago, were destroyed by an explosion November 18. There were 12 gas tanks in the plants, and when a small fire started in the engine room of one of the plants it quickly and easily spread to the tanks. The plants were completely wrecked, as were other buildings in the vicinity, and several lives were lost and many persons injured.

Fire destroyed the four-story brick building of the Burdette-Rowntree Company, maker of "dummy" elevators, Chicago, November 18. The loss to the building is placed at \$20,000 and to the stock at about \$40,000. The company has as yet formulated no plans for the rebuilding of the plant and is temporarily located at 77-79 West Jackson boulevard, Chicago.

The plant of the Cheswick Mfg. Company, at Cheswick, Pa., was completely destroyed by fire last week. The concern manu-

factured agricultural steel, harrow disks, rolling colters and other specialties in steel. It is probable the plant will be rebuilt on a larger scale than before.

Hardware.

Tenney & Sikking, makers of garden plows, shoveling boards and other farm implement specialties, Decatur, Ill., have incorporated with a capital stock of \$25,000. The incorporators are A. W. Sikking, Myrtle B. Knight and F. M. Tenney.

W. S. Burn, representing New York interests, has purchased the stock on hand and the equity of the Housatonic Mfg. Company, New Haven, Conn. The manufacture of tinned steel spoons, knives, forks, &c., gas and electric holders and screw caps, and contract specialty work will be continued by the new organization, the name of which has not yet been made public, and in addition some new staple lines are to be added to the business. Col. Rollin S. Woodruff was appointed receiver of the Housatonic Mfg. Company a few months ago, and the business has been continued by him until the present sale was approved by the Superior Court judge on the 18th inst. Two hundred employees have been employed, and this number, we are advised, will be doubled in a few months.

The New Castle Stamping Company, New Castle, Pa., in order to accommodate its rapidly increasing business, has made the following additions to its plant: A new mill room, 40 x 100 feet; annealing room, 30 x 100 feet; five muffle furnaces, a double smelter and a large annealing furnace. The company has also increased the space in the enamel shop 60 x 80 feet. These, with other improvements recently made, have enabled the company to more than double its output. Since its start, over two years ago, with the exception of a two weeks' shutdown to make necessary repairs, this plant has been in constant operation. Orders are coming in in good volume, and the outlook for business for the coming year is most encouraging.

The Avery Stamping Company, Cleveland, Ohio, has acquired the property of the West Virginia Steel Company, Wheeling, W. Va., and has removed the plant to Bellaire, Ohio, where an abandoned glass plant has been purchased and the stamping machinery installed. The plant will be operated under the firm name of Avery-Caldwell Mfg. Company. Charles J. Colling, formerly superintendent of the Cleveland Wire Spring Company, will manage the plant.

The Chattanooga Roofing & Foundry Company, Chattanooga, Tenn., reports a very busy and satisfactory year, especially in the building line departments. During the year it has added a large brick structure for the accommodation of its growing business in wrought iron work, such as fire escapes, stairways, balconies, awning frames, rods, anchors, &c. The company's factory now covers two blocks, having a frontage of about 1000 feet, which is entirely occupied in producing over 300 articles and styles of cast, wrought and sheet iron materials.

The Buchanan-Bolt Company, Holyoke, Mass., manufacturer of wire cloth, is to erect an addition to its factory 35 x 250 feet and two stories, to increase manufacturing facilities.

Miscellaneous.

The Knox Motor Truck Company, a newly formed Massachusetts corporation, is to erect a plant at Brightwood, Springfield, Mass., to manufacture motor trucks which are said to contain new and interesting features. A site has been procured with a railroad frontage of 350 feet, and shops with 75,000 square feet of floor space will be erected immediately, the contract calling for the completion of the plant March 1. In the meanwhile the work of manufacture will begin at the shops of Baush Machine Tool Company, Brightwood. The officers are: President and general manager, Harry A. Knox, until recently with the Knox Automobile Company; vice-president and superintendent, Walter S. Pease, formerly with the Electric Vehicle Company, Hartford, Conn., and the Knox Automobile Company, and treasurer, Clarence J. Wetsel, treasurer and manager of the Baush Machine Company. It is expected that the first of the motor trucks will be completed in a month or six weeks. The company is capitalized for \$100,000.

Seneca Mfg. Company, Kent, Ohio, manufacturer of steel chains, has commenced work on a large addition to its plant. At present the plant employs 200 men, and this force will be largely increased when the addition is completed next spring.

The Safety Gas Burner Company, Akron, Ohio, has been formed by Theodore Herlinger, Frank Silcox, James Wilson, Clarence Fox, Live Fox and C. J. McCormick. The company will manufacture a new form of gas burner provided with an attachment which turns off the gas in case the pressure gives out.

The Twentieth Century Metallic Packing Company, Elyria, Ohio, has been chartered with \$40,000 capital stock by E. J. Fuller, S. P. Lang, H. C. Fuller, Claude Blanchard and Peter Miller. The company will manufacture metallic packing for piston and valve rods on engines.

The plant of the Gallon Wagon & Gear Company, at Gallon, Ohio, will be sold at auction on November 22 by R. C. Johnson, receiver for the company. The plant consists of 5 acres of land, with two buildings 50 x 612 feet.

The Ashland Steel Range Company, Ashland, Ohio, has recently completed a large addition to its factory and is preparing

to install machinery for the production of a line of malleable iron stoves in addition to the cast iron stoves it has produced in the past. The new department will start about the first of the year.

The Frontier Automatic Machine Company has been incorporated at Buffalo, N. Y., to manufacture and supply electrically operated automatic slot machines. The company is capitalized at \$10,000. Incorporators: Frank B. Steele, Frank Kertz and T. R. Nove, Buffalo.

The Premier Motor Mfg. Company, Indianapolis, has increased its capital stock from \$50,000 to \$100,000.

Iron and Industrial Stocks.

NEW YORK, November 23, 1904.

New high records have been made by many of the active industrial stocks during the past week. The figures now ruling are coming up to those prevalent in the stock market two years ago. United States Steel preferred sold up to 90½, the common up to 28¾ and the new 5 per cent. bonds up to 91½. United States Cast Iron Pipe preferred touched 74¾ and the common 17; Tennessee Coal & Iron, 77½; Sloss-Sheffield preferred 100 and the common 65; Republic preferred 69¾ and the common 17¼; Railway Spring preferred 89½ and the common 35; Pressed Steel preferred 84¾ and the common 36¾; Colorado Fuel, 49½; Cambria Steel, 25¾; American Steel Foundries preferred 51½ and the common 15; American Locomotive preferred 102½ and the common 34; American Car & Foundry preferred 89½ and the common 32¾; American Can preferred 53¾ and the common 10; Allis-Chalmers preferred 70¾ and the common 21¾. Something of a chill was administered to the stock market on Tuesday by engagements for the shipment of gold to Europe and a rather sharp advance in the rates asked on money. The supply of money has been so abundant during this year that interest rates have ruled unusually low, but it would now appear that higher charges will be made for the remainder of the year. Call money ran up to 4 per cent. on Tuesday. Last sales of active stocks up to 1.30 p.m. to-day were made at the following prices: Can common 9¼, preferred 51½; Car & Foundry common 31½, preferred 88½; Locomotive common 32¾, preferred 102; Colorado Fuel 48; Pressed Steel common 36, preferred 83; Railway Spring common 32½, preferred 89; Republic common 16½, preferred 68¾; Sloss-Sheffield common 60¾, preferred 100; Tennessee Coal & Iron 74¾; United States Steel common 27½, preferred 89¾; new 5's 92¾.

The shareholders of the Pittsburgh Stove & Range Company have authorized a bond issue of \$600,000 to retire the company's \$1,000,000 of preferred stock. The bonds will run 20 years and will bear 5 per cent. interest. The preferred stock is 7 per cent. cumulative \$50 par and will be exchanged for the new bonds, back dividends and all, at the rate of \$200 par in stock for \$100 in bonds. The company expects to have its Pittsburgh manufacturing operations all concentrated at the new plant on Preble avenue, Allegheny, early in the new year, and other Pittsburgh properties now occupied by the plants may be sold.

Stockholders of the Pittsburgh Reduction Company, manufacturer of pure aluminum, are offered their choice of paying 50 per cent. on the new stock being issued, taking negotiable receipts, or taking up only 50 per cent. of their allotment of the new stock and paying cash for it, in this way getting the new stock at once instead of waiting a year or more.

The preferred stock of the Wheeling Steel & Iron Company, operating blast furnaces, Bessemer steel works, pipe and tube mills at Wheeling, W. Va., has advanced from 90 to 115 bid, and it is said no stock is available at this price. The company is now behind on two quarterly dividends of 2 per cent. each, and it is said these delayed dividends will be paid before long.

Dividends.—Railway Steel Spring Company has declared the quarterly dividend of 1¼ per cent. on the preferred stock, payable December 20.

Philadelphia Foundry Foremen.—The Associated Foundry Foremen of Philadelphia and vicinity held their second regular meeting at the Manufacturers' Club in Philadelphia, Wednesday evening, November 16. In addition to the transaction of routine business, the following trustees were elected: W. O. Steele, Bateman Mfg. Company, Grenloch, N. J.; H. W. Kramer, Thomas Devlin Mfg. Company, Philadelphia; Adam Pugh, I. A. Sheppard & Co., Philadelphia. Thomas Devlin and Howard Evans, Philadelphia, and F. C. Everett, New York, were also elected honorary members. Several new members were added to the roll, and after a general discussion regarding foundry practice the meeting adjourned.

National Metal Trades Association Notes.

CINCINNATI, OHIO, November 21, 1904.—The last issue of the National Metal Trades Association *Bulletin* will be of such a character as to call especial attention to it when it appears under its new title, "The Open Shop." One of the distinct features of this issue will be the discussion of the article from the pen of Clarence S. Darrow which appeared in a recent edition of a leading Eastern publication.

The St. Louis Metal Trades Association will hold its annual meeting for the election of officers and the transaction of other important business at headquarters, 318 Chemical Building, November 23, at 2.30 p.m. W. P. Eagan, commissioner, will address the meeting on important subjects.

The regular monthly meeting of the New York Metal Trades Association will be held at 3 o'clock p.m., December 8, at the association's rooms. Immediately preceding this meeting the Executive Committee will hold a session. Mr. Hunter, the secretary of the association, takes great pleasure in announcing that the labor bureau department is now in running order.

W. C. Gentry has been elected to the secretaryship of the Manufacturers' Association, Pittsburgh. He reports considerable difficulty in securing apprentices who are willing to take outside positions at apprentice wages and also that the pattern makers' league of this city was reorganized several days ago.

It appears that there is a movement on foot in Pittsburgh to consolidate the Iron Molders' Union, the International Association of Machinists, Structural Iron Workers, Boiler Makers, &c.

The Chicago Metal Trades Association is requesting its members to furnish the secretary with written opinions as to the advantage or disadvantage of the "closed shop" as against "the open shop." John Hibbard, president of the Chicago Metal Trades Association, will read a paper embodying various opinions of the members of his association on the open shop question at the annual meeting of the American Economic Association the latter part of next month.

A great many members of the National Founders' Association, who were in attendance at the annual meeting of that body held in Cincinnati last week, took occasion to visit the headquarters of the National Metal Trades Association. They expressed themselves as greatly pleased with the manner in which they were welcomed and left feeling that their session had been one of profit.

Employers to Meet in New York.

The annual convention of the Citizens' Industrial Association of America will be held in the Hotel Astor, New York, on November 29 and 30. It is expected that there will be a large attendance of manufacturers and representatives of local employers' associations from all sections of the country. The following is a list of the speakers scheduled for the meeting and the topics of discussion in which they will lead: Daniel Davenport, executive agent American Antiboycott Association, Bridgeport, Conn., "The Past, Present and Future of the Boycott;" Charles N. Chadwick, manufacturer, Brooklyn, "Apprenticeships and the American Boy;" Wallace Downey, shipbuilder, New York, "Profit Sharing and Loss Sharing;" P. D. Oviatt, secretary Employers' Association, Rochester, "Employers' Associations and Citizens' Alliances;" Frederick W. Job, secretary Employers' Association, Chicago, "Labor and Politics;" John Kirby, Jr., Dayton, "The Open Shop;" C. W. Post, Battle Creek, "The Boycott and the Open Shop;" J. C. Craig, Denver, "The Citizens' Alliance and the Western Federation of Miners;" F. C. Nunemacher, president Employing Printers' Association of Louisville, "The Open Shop and the Employing Printers;" Frederick E. Matson, secretary Employers' Association, Indianapolis, "The Relation of the Industrial Movement to Politics;" James A. Emery, San Francisco, "The Open Shop on the Coast."

The Iron and Metal Trades

Ample employment for the furnaces and mills is now practically assured for the winter, which is usually faced by the industry with doubts. The buying movement has spread in all directions and has assumed somewhat surprising proportions. Consumers and manufacturers in the general trades are providing for replacing their depleted stocks, this being reflected particularly in the raw materials like Pig Iron and in the finished goods like Wire, Bars, Tubes, Sheets and Cast Iron Pipe. The railroads, the absence of whose orders was so keenly felt during the past year, are purchasing generally, in many cases attempting to take care of their requirements for the whole of the coming year. The only exception is for Rails, on which prices have not yet been fixed. The Locomotive Tire trade continues demoralized by a struggle among the mills, who are cutting prices down to $2\frac{1}{2}c$ to $2\frac{3}{4}c$.

The purchasing of Steel Cars by the railroads is a conspicuous feature of the market, which is reflected by large orders for Plates and Shapes. During the past few days orders for 6000 Steel Cars have been placed, and 15,000 cars are now under negotiation.

A large number of railroads have purchased bridge material during the past week, the Pennsylvania, Chesapeake & Ohio, Ontario & Western, Northern Pacific, Chicago & Northwestern, Fort Wayne and Atchison having taken in the aggregate 20,000 tons. Other contracts are pending, among them a lot of 10,000 tons for the Boston elevated system.

The market for Foundry Irons has been quite active, the Pipe interests being conspicuous buyers. In the East a Lehigh Valley foundry making tunnel castings has purchased about 9000 tons of No. 2 Plain at \$15.50. Eastern makers of Foundry Irons have advanced their prices further and the Southern makers are somewhat stiffer.

An interesting report comes from Philadelphia to the effect that an interest there has purchased 5000 tons of warrants in Great Britain, which may be available for export sales of finished castings.

A good deal of buying for future requirements was done by the general trade in Plates in anticipation of an advance which did not come. It is felt, however, that higher prices for Plates and Shapes will come before long.

Nothing has yet been decided in regard to Steel Rails for next year. There have been conferences which indicate a satisfactory adjustment of percentages. There is some talk of taking the Angle Bar tonnage into account. It is estimated that the demand for 1905 will call for a very good aggregate of Rails.

Among the recent Rail orders taken for foreign delivery is a lot of 5000 tons for the Great Northern of England.

The markets abroad have been showing an advancing tendency, and Billets and Bars are now quoted at 81 to 82 shillings, English ports. It is understood that American Steel makers are not heavily committed to foreign buyers beyond the end of this year.

The Scrap Iron markets have been in an excited condition lately, the moderate stock being closely held.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

Nov. 23, 1904, Nov. 16, 1904, Oct. 26, 1904, Nov. 25, 1903.

PIG IRON:

Foundry Pig No. 2, Standard, Philadelphia	\$16.25	\$16.25	\$14.75	\$15.00
Foundry Pig No. 2, Southern, Cincinnati	15.75	15.25	13.75	11.75
Foundry Pig No. 2, Local, Chicago	16.00	16.00	14.50	11.50
Bessemer Pig, Pittsburgh	15.35	15.35	13.60	14.85
Gray Forge, Pittsburgh	14.10	14.35	12.85	12.50
Lake Superior Charcoal, Chicago	16.50	16.50	13.50	17.00

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh	21.00	21.00	19.50	23.00
Steel Billets, Philadelphia	24.00	23.50	22.00	24.25
Steel Billets, Chicago	24.00	24.00	22.50	24.00
Wire Rods, Pittsburgh	27.00	27.00	26.00	31.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago	15.00	14.50	11.50	9.00
O. Steel Rails, Philadelphia	15.75	14.75	14.00	12.00
O. Iron Rails, Chicago	22.00	19.50	17.50	14.00
O. Iron Rails, Philadelphia	18.50	17.50	17.00	16.00
O. Car Wheels, Chicago	15.50	14.50	13.00	14.00
O. Car Wheels, Philadelphia	14.00	14.00	13.00	12.75
Heavy Steel Scrap, Pittsburgh	14.50	14.50	12.50	12.00
Heavy Steel Scrap, Chicago	14.00	13.00	11.50	10.00

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	1.53½	1.50	1.43½	1.35
Common Iron Bars, Chicago	1.50	1.45	1.40	1.35
Common Iron Bars, Pittsburgh	1.44½	1.44½	1.30	1.34½
Steel Bars, Tidewater	1.44½	1.44½	1.44½	1.44½
Steel Bars, Pittsburgh	1.30	1.30	1.30	1.30
Tank Plates, Tidewater	1.54½	1.54½	1.54½	1.78
Tank Plates, Pittsburgh	1.40	1.40	1.40	1.60
Beams, Tidewater	1.54½	1.54½	1.54½	1.73½
Beams, Pittsburgh	1.40	1.40	1.40	1.60
Angles, Tidewater	1.54½	1.54½	1.54½	1.73½
Angles, Pittsburgh	1.40	1.40	1.40	1.60
Skelp, Grooved Steel, Pittsburgh	1.40	1.40	1.35	1.35
Skelp, Sheared Steel, Pittsburgh	1.50	1.50	1.40	1.40
Sheets, No. 27, Pittsburgh	2.10	2.00	2.00	2.35
Barb Wire, f.o.b. Pittsburgh	2.15	2.05	2.05	2.50
Wire Nails, f.o.b. Pittsburgh	1.70	1.60	1.60	1.90
Cut Nails, f.o.b. Pittsburgh	1.70	1.60	1.60	1.90

METALS:

Copper, New York	14.37½	14.00	13.37½	12.50
Spelter, St. Louis	5.55	5.35	5.20	5.00
Lead, New York	4.60	4.60	4.20	4.10
Lead, St. Louis	4.45	4.40	4.20	4.00
Tin, New York	29.00	29.00	28.70	25.55
Antimony, Hallett, New York	9.00	8.00	7.12½	6.25
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.64	3.64	3.49	3.79

Chicago.

FISHER BUILDING, November 22, 1904.—(By Telegraph.)

It is surprising how quickly the commercial mind adapts itself to new conditions. Men who two months ago were extremely dubious about the condition of affairs, and who at best could see no more than a \$1 or \$2 increase in Pig Iron, are now talking \$15, Birmingham, before January. Buyers who held off six or eight weeks ago in the hope of securing still lower prices than then prevailed are being stampeded into buying for far future deliveries at \$3 and \$4 a ton higher than they could have bought at that time. New furnaces have come into blast and finishing mills in almost every line are increasing their capacity. Railroads are coming into the market on large requirements, widely diversified, and the whole tone of the market situation as viewed in Chicago is bullish. On the other hand, there are many veterans in the trade who say that prices have already reached too high a point consistent with the actual consumptive demand, and that it will require little short of a miracle to bring this demand up to a point where it will justify sustaining present prices. There is, no doubt, much that is anticipatory in present prices and conditions, but the anticipation of last week becomes the realization of this, and there is much to sustain the view that the upward tendency will continue and that unusually low stocks in the hands of consumers, jobbers and dealers, coupled with a healthy increase in actual consumptive demand, will require the utmost capacity of finishing mills to supply. If this is true of finishing mills, it is much more so of producers of Pig Iron, as it is acknowledged that the growth of the producing capacity in raw material has not nearly kept pace with the increase in the possible tonnage output of the mills that fabricate finished products. The most sensational feature of the day's market is an advance of from \$2 to \$3 in Scrap Iron, an advance that has been brought

about by heavy buying of consumers and by a panic of shorts who have bid up prices to stop their losses on large time contracts. The new demand for warrant iron is largely responsible for an advance on Southern iron, as active bidding for warrants on the New York Exchange on the basis of \$13.25 for No. 2, at Southern furnaces, and a large sale of warrants at that price have led Southern furnaces to advance their selling price to the trade to \$13.50 for delivery this year or the first quarter of next. Thus far Northern producers have not participated in this advance, which they are inclined to consider as temporary and unhealthy, and therefore we repeat last week's quotations on local Northern iron on the basis of \$16 to \$16.25, Chicago, which is from 90c. to \$1.50 lower than the minimum price of Birmingham iron for Chicago delivery, an unusual condition of affairs. Last week's advance in the price of Billets has stiffened the backbone of producers of Bars, Plates and Structural Steel, and though no official advances have been made in prices on these commodities, the tone is stronger and the probability of an official advance later on is greater than it was a week ago. Anticipating such advances, buyers in these lines are doing their utmost to cover their requirements up to next July and beyond. They are meeting with partial success in their efforts to cover to July, but with almost total failure beyond that period. Sheet steel makers, as a rule, have advanced their prices unofficially \$1 to \$3 a ton, and will not quote present prices for delivery beyond January 1, though some will take orders for 60 days. In Structural Materials July 1 is set as the latest date for delivery, which means specifications in April or May on most orders. Plate makers are reluctant to name prices beyond the first quarter of next year, and some confine their datings to January 1 or before. It is generally understood here that an announcement of importance to railroad interests will be made before another week. The demand for both Cast and Wrought Pipe is unusually good for this time of year. Cast Iron Pipe has been advanced by the makers \$1 a ton, whereas their cost on Pig Iron is at least \$3 a ton higher than it was six weeks ago. The official announcement of the new prices on Wire and Wire products, advancing them \$2 a ton, reached Chicago too late to be incorporated in this report last week. Independent makers are only too glad to participate in this increase, as the cost of their raw material has advanced in even greater proportion. Copper is $\frac{1}{4}$ c. higher, and Sheet Zinc has had two 10c. advances since our last report. Coke is stronger, owing to the fact that it is now thought the supply may be inadequate for the demand before the year is over, and this strength in Coke is one of the most prominent facts in the increasing stiffness of the iron market.

Sheets.—In general, the prices on Sheets have advanced unofficially from \$1 to \$2 a ton, at mill, but the market is in a transition stage when it is impossible to quote definite prices. The American Sheet & Tin Plate Company is apparently refusing to quote jobbers any definite schedule, making individual prices on individual specifications. We advance last week's quotations \$2 a ton, with the explanation that \$1 higher or lower may be quoted by individual interests, depending upon character of orders, credit of customer and date of delivery. We quote, Chicago, car lots, on blue annealed and box annealed Sheets: Nos. 9 and 10, 1.76 $\frac{1}{2}$ c.; Nos. 11 and 12, 1.81 $\frac{1}{2}$ c.; Nos. 13 and 14, 1.86 $\frac{1}{2}$ c.; Nos. 15 and 16, 1.96 $\frac{1}{2}$ c.; Nos. 18 and 20, 2.11 $\frac{1}{2}$ c.; Nos. 22 and 24, 2.16 $\frac{1}{2}$ c.; Nos. 25 and 26, 2.21 $\frac{1}{2}$ c.; No. 27, 2.26 $\frac{1}{2}$ c.; No. 28, 2.36 $\frac{1}{2}$ c.; No. 29, 2.46 $\frac{1}{2}$ c.; No. 30, 2.56 $\frac{1}{2}$ c. The same chaotic condition exists in store prices, and while the quotations of the warehousemen have not advanced uniformly \$2, they have advanced at least \$1 on all gauges and \$2 on some. We therefore add 5c. throughout the list to quotations from store, and make the explanation that 5c. or 10c. per 100 lbs. over their prices may be charged in individual instances: Nos. 8 and 10, 1.95c. to 2c.; No. 12, 2c. to 2.05c.; No. 14, 2.05c. to 2.10c.; No. 16, 2.10c. to 2.15c.; Nos. 18 and 20, 2.25c. to 2.30c.; Nos. 22 and 24, 2.35c. to 2.40c.; No. 26, 2.45c. to 2.50c.; No. 27, 2.50c. to 2.55c.; No. 28, 2.55c. to 2.60c.; No. 29, 2.65c. to 2.75c. Galvanized Sheets have been advanced by independent makers an equivalent of about \$2 a ton, making 80 and 7 $\frac{1}{2}$, at Pittsburgh, the lowest obtainable prices for carload lots, mill shipment. Chicago jobbers have also advanced prices of Galvanized from store, prices now ranging from 75 and 10 to 75, 10 and 5 from list.

Cast Iron Pipe.—The leading producer of Cast Iron Pipe has only advanced prices about \$1 a ton, in spite of the fact that the cost of Pig Iron is at least \$3 a ton higher than it was two months ago. The new quotations on current car lots of Cast Pipe will be on the basis of \$27.50 for 4-inch Water Pipe and \$26.50 for 6-inch and heavier, with \$1 a ton extra for Gas Pipe. Business is greater than is usual at this season of the year, owing to the protracted warm and dry weather in the entire West, which permits of outdoor operations that are not usually possible this late in the year.

Old Materials.—This market is feverishly active, with prices ruling \$2 to \$3 a ton higher than they did a week ago, and with even the veterans in the business puzzled to know

which way to turn. There is no doubt that dealers throughout the country, from the smallest to the largest, have immense quantities of Old Material stored up, so much so that they control the situation and are able to compel the consumers of Scrap Iron and Steel to pay fancy prices for such material as they consent to sell them; but the profits of many dealers will be greatly reduced by the fact that they sold short last summer at prices then prevailing. The increase in consumptive demand, the policy of hoarding materials adopted by dealers in general and the scramble of shorts to cover at whatever price may be necessary have all shared in the bull movement. The Chicago, Burlington & Quincy Railway has just sold about 4000 tons of miscellaneous material at prices ranging from \$3 to \$5 a ton higher than could have been secured a month ago. What was considered at the end of October a bubble that must soon burst has grown to much greater proportions, and the bursting point has not yet been reached. Conditions have reached a state where makers of Bar Iron who have not covered their requirements are in a serious predicament, particularly those who made sale contracts up to next July to railroad and implement makers on the basis of from \$1.15 to \$1.25, at mill. The markets are in a condition where even those dealers who have heavy stocks and are anxious to see prices go higher are fearful that they have already gone too high and that a serious relapse may occur. The greatest increases are in the Iron Scrap items, and these are the ones that are most likely to be maintained owing to the increasing scarcity of Iron scrap, as year by year the use of Steel in place of Iron is lessening the available supply of Old Iron. The following prices represent buying cost to large consumers at Chicago in car lots and greater, the maximum prices, as a rule, representing the lowest figures at which dealers will sell their stock and the minimum prices those at which dealers may buy direct from producers. A comparison of this week's prices with last week's will tell its own story. Per gross ton:

Old Iron Rails.....	\$22.00 to \$22.50
Old Steel Rails, 4 feet and over.....	16.00 to 16.50
Old Steel Rails, less than 4 feet.....	15.00 to 15.50
Heavy Relaying Rails, subject to inspection.....	22.00 to 22.50
Heavy Relaying Rails, for side tracks.....	20.00 to 20.50
Old Car Wheels.....	15.50 to 16.00
Heavy Melting Steel Scrap.....	14.00 to 14.50
Frogs, Switches and Guards.....	14.00 to 14.25
Mixed Steel.....	10.00 to 10.50

The following quotations are per net ton:

Iron Fish Plates.....	\$17.50 to \$18.25
Iron Car Axles.....	21.00 to 22.00
Steel Car Axles.....	16.50 to 17.00
No. 1 Railroad Wrought.....	17.50 to 18.00
No. 2 Railroad Wrought.....	16.50 to 17.00
Shafting.....	17.50 to 18.00
No. 1 Dealers' Forge.....	14.00 to 14.50
Wrought Pipes and Flues.....	13.00 to 13.50
Iron Axle Turnings.....	12.00 to 12.50
Soft Steel Axle Turnings.....	12.00 to 12.50
Machine Shop Turnings.....	11.50 to 12.00
Cast Borings.....	7.50 to 8.00
Mixed Borings, &c.....	7.50 to 8.00
No. 1 Mill.....	9.50 to 10.00
Country Sheet.....	8.50 to 9.00
No. 1 Rollers, cut to Sheets and Rings.....	11.50 to 12.00
No. 1 Cast Scrap.....	14.00 to 14.50
Stove Plate and Light Cast Scrap.....	12.00 to 12.50
Railroad Malleable.....	12.50 to 13.00
Agricultural Malleable.....	12.00 to 12.50

Metals.—Copper and Sheet Zinc show sharp advances. Business has improved greatly in all lines of the softer metals, possibly in sympathy with the increasing prices on Iron. Copper has advanced at least $\frac{1}{4}$ c. since last week, present quotations being 15c. to 15 $\frac{1}{2}$ c. on Casting Copper and 15 $\frac{1}{4}$ c. to 15 $\frac{1}{2}$ c. on Lake. Pig Tin is unchanged at 30 $\frac{1}{2}$ c. to 31c. Pig Lead is still held at the official price of 4.20c. for 50-ton lots, 4.30c. for car lots and 4.50c. for small lots, but these prices may be considered almost nominal, as it is practically impossible to obtain Lead from producers at this or any other price. Spelter is held at about 5 $\frac{1}{2}$ c. in car lots and 5.60c. to 5.70c. in small lots. Sheet Zinc has been given two 10c. advances since last week's report, making the present prices 6.55c. per lb., Chicago, car lots, in 600-lb. casks, and $\frac{1}{4}$ c. to $\frac{1}{2}$ c. higher for smaller lots. Old Metals with the exception of Brass, which has advanced $\frac{1}{4}$ c., are unchanged in price, but strong in tone. We quote: Copper Wire and Heavy, 13c.; Copper Bottoms, 12c.; Copper Clips, 12 $\frac{1}{2}$ c.; Red Brass, 12c.; Red Brass Borings, 10c.; Yellow Brass, Heavy, 9c.; Yellow Brass Borings, 8 $\frac{1}{2}$ c.; Light Brass, 7 $\frac{1}{4}$ c.; Lead Pipe, 4.25c.; Tea Lead, 4.10c.; Zinc, 4 $\frac{1}{4}$ c.; Pewter, No. 1, 18 $\frac{1}{2}$ c.; Block Tin Pipe, 25c.

(By Mail.)

Pig Iron.—A variety of causes, among which the most prominent is the high price bid on the New York Produce Exchange for Pig Iron Warrants, have led to another advance in Southern Pig Iron. Warrants have been sold by Southern producers at \$13.25, which is equivalent to at least \$13.50 for the Iron itself as sold through the ordinary brokerage channels, and the result is that all Southern producers are firmly holding at \$13.50. Northern producers have not yet advanced their Iron, and we repeat last week's quotations. It will be seen by this that Southern Iron is offered

in Chicago market at \$1.15 higher than Northern, and the strange part of it is that quite a large tonnage is being booked at this high price. Neither Northern nor Southern Irons are sold as a general thing for delivery beyond next March. The comparative quiet of last week is being succeeded by another season of more or less feverish activity, and a heavy buying movement, in both Northern and Southern Irons, is in progress. The following are the prices that are being asked in this market for delivery either the balance of this year or the first quarter of next:

Lake Superior Charcoal.....	\$16.50 to \$17.00
Northern Coke Foundry, No. 1.....	16.50 to 16.75
Northern Coke Foundry, No. 2.....	16.00 to 16.25
Northern Coke Foundry, No. 3.....	15.50 to 15.75
Northern Scotch, No. 1.....	17.00 to 17.25
Ohio Strong Softeners, No. 1.....	17.80 to 18.30
Ohio Strong Softeners, No. 2.....	17.30 to 17.80
Southern Silvery, 4 to 6 per cent. Silicon.....	18.15 to 19.15
Southern Coke, No. 1.....	to 17.65
Southern Coke, No. 2.....	to 17.15
Southern Coke, No. 3.....	to 16.65
Southern Coke, No. 4.....	to 16.40
Southern Coke, No. 1 Soft.....	to 17.65
Southern Coke, No. 2 Soft.....	to 17.15
Southern Gray Forge.....	to 16.15
Southern Mottled and White.....	to 15.90
Malleable Bessemer.....	16.00 to 16.50
Jackson County and Kentucky Silvery, 6 to 8 per cent. Silicon.....	19.30 to 20.30
Jackson County and Kentucky Silvery, 10 per cent. Silicon.....	to 21.30
Alabama Basic.....	to 17.15
Virginia Basic.....	16.40 to 16.65

Billets.—The advance of \$1.50 on the Billet list made last week is serving to stimulate rather than discourage buying, and producers have no difficulty in securing full association prices. In fact, if they would consent to book orders far into next year they might do so at a premium. The new prices on Billets are as follows: Bessemer Rolling Billets, 16 square inches in section and larger, up to but not including 100 square inches, \$24 per gross ton, Chicago; 100 square inches, up to but not including 400 square inches, \$26; 400 square inches and larger, \$30. Open Hearth Forging Billets are \$2 a ton above these prices, as are also Axle Billets and Billets smaller than 16 square inches in section.

Rails and Track Supplies.—A feeling of expectancy characterizes this market, as it is understood that the prices on Standard Section Rails for next year will be made this week. There is a strong tendency toward the belief that the present \$28 basis will be reaffirmed. Light Rails have advanced \$1, being now sold at from \$22 to \$24 a gross ton at mill. Angle Bars rule at from 1.30c. to 1.35c.; Spikes from 1.65c. to 1.70c.; Track Bolts have advanced, now being quoted at from 2.25c. to 2.30c., with Square Nuts, and about 2.40c. with Hexagon Nuts. Store prices on Angle Bars, Track Bolts and Spikes are at from 15c. to 20c. above mill prices.

Structural Materials.—The Illinois Steel Company has commenced the erection of a 28-inch Beam mill at South Chicago, to adjoin the new Blooming mill and Open Hearth plant being erected at the north end of the company's grounds. This mill, which will cost about \$1,250,000, will roll Beams from 7 to 15 inches, inclusive, and Angles, Channels, Tees, Zees, &c., in proportion. It is expected that the mill will be ready for operation before the close of 1905. No contracts of any moment have been placed within the week in this market, but the tone of the market is strong, and sellers will not accept contracts extending beyond July 1 next. Official prices are unchanged, as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.56½c., Chicago; Angles, 3 to 6 inches, ¼-inch and heavier, 1.56½c.; Angles, larger than 6 inches on one or both legs, 1.66½c.; Beams, larger than 15 inches, 1.66½c.; Zees, 3 inches and over, 1.56½c.; Tees, 3 inches and over, 1.61½c., with the usual extras for cutting to exact lengths, punching, coping, bending or other shop work. Store prices on Structural Materials are 1.80c. to 1.90c. for Angles, Beams, Channels and Zees, base sizes, with 1.90c. to 2c. for 18, 20 and 24 inch Beams; Tees, 1.85c. to 1.95c. These prices are for either random lengths or cut to lengths.

Plates.—All reports indicate that extremely large tonnages of Plates are being booked, and prices while unchanged are firm. Sellers refuse to make contracts extending beyond next July. Association prices are unchanged, as follows: Tank quality, ¼-inch and heavier, wider than 24 and up to 100 inches wide, carloads, Chicago, 1.56½c.; 3-16 inch, 1.66½c.; Nos. 7 and 8 gauge, 1.71½c.; No. 9, 1.81½c.; Flange quality, any width up to 100 inches, 1.66½c.; Sketch Plates, in Tank quality, 1.66½c.; in Flange quality, 1.76½c. Store prices on Plates are as follows: Tank Plates, up to 100 inches wide, ¼-inch and heavier, 1.80c. to 1.90c.; 3-16 inch up to 72 inches wide, 1.90c. to 2c.; No. 8 up to 60 inches wide and No. 10 up to 48 inches wide, 1.90c. to 2c.; lower gauges are quoted under the headings of Sheets. Beyond the base widths named extras from 10c. to 25c. per 100 lbs. are charged for wider widths; Flange quality is usually charged at 25c. extra.

Bars.—Iron Bars are firm at from 1.50c. to 1.55c., an advance of \$1 a ton since last week's report, and some makers are holding at 1.60c. The phenomenal advances in

the prices of Scrap Iron, noted elsewhere in this report, are at least partially responsible for the continued strength in Bar Iron. Steel Bars have not advanced, as was expected by a large element in the trade, and the old price of 1.30c., Pittsburgh, or 1.46½c., base, half extras, Chicago, in carload lots, is in vogue both for Soft Steel Bars and Bands. Soft Steel Hoops are unchanged at 1.55c. rates, full extras, Pittsburgh, or 1.71½c., Chicago, in car lots. Store prices on Iron Bars have been advanced \$1 a ton, making them 1.75c. to 1.80c., base, full extras. Soft Steel Bars and Bands are unchanged at 1.60c. to 1.70c., base, full extras; Soft Steel Angles, Channels and Tees at 1.75c. to 1.80c., half extras; Soft Steel Hoops, 2c. rates, full extras.

Merchant Steel.—Large and liberal specifications continue to come from implement manufacturers and other large users of special Steels. Prices are unchanged, as follows: Bessemer and Open Hearth Spring Steel to general trade, 1.85c. to 1.90c.; Smooth Finished Machinery Steel, 1.71½c. to 1.76½c.; Smooth Finished Tire, 1.66½c. to 1.71½c.; Flat Sleigh Shoe, 1.51½c. to 1.56½c.; Concave and Convex Sleigh Shoe, apparently unchanged at 1.66½c. to 1.71½c.; Cutter Shoe, apparently unchanged at 2.25c. to 2.30c.; Toe Calk Steel, 2.01½c. to 2.06½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots; Railway Spring, carload lots, 1.66c. to 1.71½c., with reductions for larger quantities.

Merchant Pipe.—The long continued warm and dry weather continues to favor outdoor building operations to such an extent that Pipe business is unusually active. This added to the large business that is being booked for immediate shipment via lake and rail to Western jobbers and warehousemen, as well as large consumers, before the close of navigation is leading to an exceptionally large volume of business in Merchant Pipe. Prices in car lots, f.o.b. Chicago, to consumers are made by quoting the following discounts:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
½ to ¾ inch.....	67.35	51.35	65.35	49.35
¾ and 1 inch.....	71.35	59.35	69.35	57.35
1 to 2 inches.....	75.35	65.35	73.85	63.85
2 to 4 inches.....	70.35	55.35	68.85	53.35
4 to 6 inches.....	67.35	51.35	65.35	49.35
6 to 8 inches.....	63.35	51.35	61.35	49.35
8 to 12 inches.....	60.35	48.35	58.35	46.35
12 to 16 inches.....	57.35	45.35	55.35	43.35
16 to 24 inches.....	53.35	41.35	51.35	39.35
24 to 36 inches.....	50.35	38.35	48.35	36.35
36 to 48 inches.....	47.35	35.35	45.35	33.35
48 to 60 inches.....	44.35	32.35	42.35	30.35
60 to 72 inches.....	41.35	29.35	39.35	27.35
72 to 84 inches.....	38.35	26.35	36.35	24.35
84 to 96 inches.....	35.35	23.35	33.35	21.35
96 to 108 inches.....	32.35	20.35	30.35	18.35
108 to 120 inches.....	29.35	17.35	27.35	15.35
120 to 144 inches.....	26.35	14.35	24.35	12.35
144 to 168 inches.....	23.35	11.35	21.35	9.35
168 to 192 inches.....	20.35	8.35	18.35	6.35
192 to 216 inches.....	17.35	5.35	15.35	3.35
216 to 240 inches.....	14.35	2.35	12.35	0.35
240 to 264 inches.....	11.35	0.35	9.35	0.35
264 to 288 inches.....	8.35	0.35	6.35	0.35
288 to 312 inches.....	5.35	0.35	3.35	0.35
312 to 336 inches.....	2.35	0.35	0.35	0.35
336 to 360 inches.....	0.35	0.35	0.35	0.35
360 to 384 inches.....	0.35	0.35	0.35	0.35
384 to 408 inches.....	0.35	0.35	0.35	0.35
408 to 432 inches.....	0.35	0.35	0.35	0.35
432 to 456 inches.....	0.35	0.35	0.35	0.35
456 to 480 inches.....	0.35	0.35	0.35	0.35
480 to 504 inches.....	0.35	0.35	0.35	0.35
504 to 528 inches.....	0.35	0.35	0.35	0.35
528 to 552 inches.....	0.35	0.35	0.35	0.35
552 to 576 inches.....	0.35	0.35	0.35	0.35
576 to 600 inches.....	0.35	0.35	0.35	0.35
600 to 624 inches.....	0.35	0.35	0.35	0.35
624 to 648 inches.....	0.35	0.35	0.35	0.35
648 to 672 inches.....	0.35	0.35	0.35	0.35
672 to 696 inches.....	0.35	0.35	0.35	0.35
696 to 720 inches.....	0.35	0.35	0.35	0.35
720 to 744 inches.....	0.35	0.35	0.35	0.35
744 to 768 inches.....	0.35	0.35	0.35	0.35
768 to 792 inches.....	0.35	0.35	0.35	0.35
792 to 816 inches.....	0.35	0.35	0.35	0.35
816 to 840 inches.....	0.35	0.35	0.35	0.35
840 to 864 inches.....	0.35	0.35	0.35	0.35
864 to 888 inches.....	0.35	0.35	0.35	0.35
888 to 912 inches.....	0.35	0.35	0.35	0.35
912 to 936 inches.....	0.35	0.35	0.35	0.35
936 to 960 inches.....	0.35	0.35	0.35	0.35
960 to 984 inches.....	0.35	0.35	0.35	0.35
984 to 1008 inches.....	0.35	0.35	0.35	0.35
1008 to 1032 inches.....	0.35	0.35	0.35	0.35
1032 to 1056 inches.....	0.35	0.35	0.35	0.35
1056 to 1080 inches.....	0.35	0.35	0.35	0.35
1080 to 1104 inches.....	0.35	0.35	0.35	0.35
1104 to 1128 inches.....	0.35	0.35	0.35	0.35
1128 to 1152 inches.....	0.35	0.35	0.35	0.35
1152 to 1176 inches.....	0.35	0.35	0.35	0.35
1176 to 1200 inches.....	0.35	0.35	0.35	0.35
1200 to 1224 inches.....	0.35	0.35	0.35	0.35
1224 to 1248 inches.....	0.35	0.35	0.35	0.35
1248 to 1272 inches.....	0.35	0.35	0.35	0.35
1272 to 1296 inches.....	0.35	0.35	0.35	0.35
1296 to 1320 inches.....	0.35	0.35	0.35	0.35
1320 to 1344 inches.....	0.35	0.35	0.35	0.35
1344 to 1368 inches.....	0.35	0.35	0.35	0.35
1368 to 1392 inches.....	0.35	0.35	0.35	0.35
1392 to 1416 inches.....	0.35	0.35	0.35	0.35
1416 to 1440 inches.....	0.35	0.35	0.35	0.35
1440 to 1464 inches.....	0.35	0.35	0.35	0.35
1464 to 1488 inches.....	0.35	0.35	0.35	0.35
1488 to 1512 inches.....	0.35	0.35	0.35	0.35
1512 to 1536 inches.....	0.35	0.35	0.35	0.35
1536 to 1560 inches.....	0.35	0.35	0.35	0.35
1560 to 1584 inches.....	0.35	0.35	0.35	0.35
1584 to 1608 inches.....	0.35	0.35	0.35	0.35
1608 to 1632 inches.....	0.35	0.35	0.35	0.35
1632 to 1656 inches.....	0.35	0.35	0.35	0.35
1656 to 1680 inches.....	0.35	0.35	0.35	0.35
1680 to 1704 inches.....	0.35	0.35	0.35	0.35
1704 to 1728 inches.....	0.35	0.35	0.35	0.35
1728 to 1752 inches.....	0.35	0.35	0.35	0.35
1752 to 1776 inches.....	0.35	0.35	0.35	0.35
1776 to 1800 inches.....	0.35	0.35	0.35	0.35
1800 to 1824 inches.....	0.35	0.35	0.35	0.35
1824 to 1848 inches.....	0.35	0.35	0.35	0.35
1848 to 1872 inches.....	0.35	0.35	0.35	0.35
1872 to 1896 inches.....	0.35	0.35	0.35	0.35
1896 to 1920 inches.....	0.35	0.35	0.35	0.35
1920 to 1944 inches.....	0.35	0.35	0.35	0.35
1944 to 1968 inches.....	0.35	0.35	0.35	0.35
1968 to 1992 inches.....	0.35	0.35	0.35	0.35
1992 to 2016 inches.....	0.35	0.35	0.35	0.35
2016 to 2040 inches.....	0.35	0.35	0.35	0.35
2040 to 2064 inches.....	0.35	0.35	0.35	0.35
2064 to 2088 inches.....	0.35	0.35	0.35	0.35
2088 to 2112 inches.....	0.35	0.35	0.35	0.35
2112 to 2136 inches.....	0.35	0.35	0.35	0.35
2136 to 2160 inches.....	0.35	0.35	0.35	0.35
2160 to 2184 inches.....	0.35	0.35	0.35	0.35
2184 to 2208 inches.....	0.35	0.35	0.35	0.35
2208 to 2232 inches.....	0.35	0.35	0.35	0.35
2232 to 2256 inches.....	0.35	0.35	0.35	0.35
2256 to 2280 inches.....	0.35	0.35	0.35	0.35
2280 to 2304 inches.....	0.35	0.35	0.35	0.35
2304 to 2328 inches.....	0.35	0.35	0.35	0.35
2328 to 2352 inches.....	0.35	0.35	0.35	0.35
2352 to 2376 inches.....	0.35	0.35	0.35	0.35
2376 to 2400 inches.....	0.35	0.35	0.35	0.35
2400 to 2424 inches.....	0.35	0.35	0.35	0.35
2424 to 2448 inches.....	0.35	0.35	0.35	0.35
2448 to 2472 inches.....	0.35	0.35	0.35	0.35
2472 to 2496 inches.....	0.35	0.35	0.35	0.35
2496 to 2520 inches.....	0.35	0.35	0.35	0.35
2520 to 2544 inches.....	0.35	0.35	0.35	0.35
2544 to 2568 inches.....	0.35	0.35	0.35	0.35
2568 to 2592 inches.....	0.35	0.35	0.35	0.35
2592 to 2616 inches.....	0.35	0.35	0.35	0.35
2616 to 2640 inches.....	0.35	0.35	0.35	0.35
2640 to 2664 inches.....	0.35	0.35	0.35	0.35
2664 to 2688 inches.....	0.35	0.35	0.35	0.35
2688 to 2712 inches.....	0.35	0.35	0.35	0.35
2712 to 2736 inches.....	0.35	0.35	0.35	0.35
2736 to 2760 inches.....	0.35	0.35	0.35	0.35
2760 to 2784 inches.....	0.35	0.35	0.35	0.35
2784 to 2808 inches.....	0.35	0.35	0.35	0.35
2808 to 2832 inches.....	0.35	0.35	0.35	0.35
2832 to 2856 inches.....	0.35	0.35	0.35	0.35
2856 to 2880 inches.....	0.35	0.35	0.35	0.35
2880 to 2904 inches.....	0.35	0.35	0.35	0.35
2904 to 2928 inches.....	0.35	0.35	0.35	0.35
2928 to 2952 inches.....	0.35	0.35	0.35	0.35
2952 to 2976 inches.....	0.35	0.35	0.35	0.35
2976 to 3000 inches.....	0.35	0.35	0.35	0.35

Boiler Tubes.—Business is improving and the statement is made that railroads are becoming larger and larger buyers. The \$2 advance announced last week has not at all retarded buying. The current prices on less than car lots, Chicago, for shipment from mill, are as follows, car lot buyers being given about two points better discounts:

	Steel.	Iron.	Seamless Steel.
1 to 1½ inches.....	44.35	41.35	52.35
1½ to 2¼ inches.....	56.35	41.35	40.35
2¼ inches.....	58.35	46.35	43.35
2½ to 3 inches.....	64.35	53.35	{ up to 4 in. 50.85
3 to 4 inches.....	66.35	53.35	
4 to 5 inches.....	66.35	41.35

output will be sold through the Chicago and St. Louis offices of Matthew Addy & Co.

The newly established New York office of the L. K. Hirsch Company will extend its operations to Iron and Steel and Pig Iron Warrants, as well as Old Materials. The Chicago office of this firm will also deal in Pig Iron Warrants.

Philadelphia.

FORREST BUILDING, November 22, 1904.

There is a more settled feeling than there was a week ago, although the market shows no loss of firmness. Buyers have bought so heavily for forward delivery that a period of inactivity is somewhat probable during the remainder of the year. Prices are not as settled as could be desired, but the majority of pig iron makers have decided upon \$16.50 as their price for No. 2 X Foundry, Philadelphia, or its equivalent. There are a few who quote higher than that, but any good buyer can get reasonable quantities at the figure named, but for the present there is no running after buyers at any price. The higher cost of production leaves no great margin at present prices, yet it is felt that further advances are not desirable under present conditions. A careful canvass of the situation shows that local furnaces have sold about three and a half months' output, which is as far as they are willing to go until the situation is more fully developed, although for the present the regular trade will be taken care of for some time at \$16.50. The majority of consumers, however, are amply provided for, and it is expected that there will be no trouble in meeting the requirements of the day to day trade. There appears to be considerable difficulty in estimating what the consumption of Pig Iron will be during the next several months, and almost as much uncertainty in regard to the supply, hence the difference of opinion in regard to what prices should be. A considerable improvement in business seems to be assured, but whether it will be such as to call for more than the maximum output of 1902-3 is a difficult problem. Taking last month's production in connection with the present scarcity as a basis, it looks as though more Iron will be required during 1905 than in any former period, but as yet it is merely an expectation and liable, as expectations frequently are, to disappointments. The very confident forecasts made six or eight months ago by leading men in the trade, and which appeared at the time to be entirely warranted, have proved so far out of the way as to be an object lesson against forecasting concerning anything in the Iron trade. The theory was that 1,000,000 tons per month of Pig Iron during the last half of 1904 would be ample for all requirements, yet with 1,400,000 tons as last month's production and a \$2 advance in prices there is a scare because of a shortage in Pig Iron. Guessing, therefore, in times like these is a dangerous experiment. It is a fair risk, however, to say that an era of improvement has commenced and is likely to continue for an indefinite period. There are possibilities that are not entirely improbabilities that it may go considerably beyond the last great movement. The reasonable probabilities are that the movement will be gradually better until a 20,000,000-ton consumption of Pig Iron is reached, which ought to be maintained from our own resources—that is to say, the growth of the country has been so great in wealth, in population and in all that goes to make a country great that 20,000,000 tons will be none too much for home consumption. Then if a demand from abroad sets in it would be hardly possible to place a limit on the quantity of Iron that may be required. This demand might not be in the way of Pig Iron, but what would be of still greater value, such as cars, locomotives, machine tools and fabricated work of all kinds. This may not be an immediate probability, but it is by no means a remote possibility, and not to be ignored in endeavoring to estimate the future. In a few weeks from now it may be possible to get a closer and more distinct view of the business situation, but for the present there is ample grounds for great hopefulness, which, after a period of discouragement, ought to be cause for much satisfaction.

Pig Iron.—The market is a trifle more settled than it was a few days ago, although it is not yet entirely free from irregularities. The price for No. 2 X Foundry Iron, however, has been placed at \$16.50, Philadelphia, or at equivalent points, and that may now be regarded as a fair average quotation. Some might quote a fraction less than that, others might ask a fraction more, but 90 per cent. of the business has been on the basis named. The immediate supply is sufficient for current requirements, but there appears to be some anxiety in regard to the early spring months, and to provide for that large lots have been taken by most of the leading consumers. There is still a considerable tonnage of idle capacity, but apprehensions are more in regard to ores, fuel and transportation than in regard to furnace capacity, but whatever the cause the uneasiness is pretty general. The improved outlook will doubtless lead to preparations for an increased output, but to what extent it will be realized and what the consumption requirements will be is as yet an open question. It appears to be pretty well established

that no material decline from present prices need be expected and that no further advance is warranted until the situation is more fully developed. After so much buying and with the near approach of midwinter holidays there should be a slight easing off until after the turn of the year, but at the moment there are no indications of that kind, and it is by no means sure that such a contingency will arise. Prices, as we said before, are likely to remain for the present at about as follows for deliveries in Philadelphia or at equivalent points:

No. 1 X Foundry.....	\$17.00 to \$17.25
No. 2 X Foundry.....	16.25 to 16.50
No. 2 Plain.....	15.75 to 16.00
Standard Gray Forge.....	15.25 to 15.75
Ordinary Gray Forge.....	14.75 to 15.00
Basic.....	15.00 to 15.25
Low Phosphorus.....	19.75 to 20.00

Steel.—There is a very good demand, and prices are strong at about \$24, delivered. There is no pressure to sell, however, as the capacity for this year's delivery is pretty well taken up, and beyond that date makers are inclined to take their chances for a portion of their output.

Muck Bars.—Prices are a little unsettled, but sales were made last week at \$27 and \$27.25, f.o.b. seller's mill. Probably more would be asked to-day for good Bars.

Plates.—Business has been extremely satisfactory during the past week or two, and mills have taken quite a large tonnage. One leading mill reports 15,000 tons sold through its local office during the past ten days, without considering the large business from other districts. Prospects for winter work are, therefore, most satisfactory, even though there may be a slight falling off in orders around the holidays. Prices unchanged, but very strong as last quoted, viz.:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel, rectangular Plates, 24 inches wide and under.....	1.43½	1.48½
Tank, Bridge and Boat Steel, over 24 inches wide.....	1.53½	1.58½
Flange or Boiler Steel.....	1.63½	1.68½
Marine, A. B. M. A. and Commercial Fire Box Steel.....	1.73½	1.78½
Still Bottom Steel.....	1.83½	1.88½
Locomotive Fire Box Steel.....	2.03½	2.08½
The above are base prices for ¼-inch and heavier. The following extras apply:		
3-16 inch thick.....	\$0.10	per 100 pounds extra
Nos. 7 and 8 W. G.....	.15	"
No. 9 W. G.....	.25	"
Plates over 100 to 110 inches.....	.05	"
Plates over 110 to 115 inches.....	.10	"
Plates over 115 to 120 inches.....	.15	"
Plates over 120 to 125 inches.....	.25	"
Plates over 125 to 130 inches.....	.50	"
Plates over 130 inches.....	1.00	"
All sketches (excepting straight taper plates, varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches).....		
Complete Circles.....	.10	"
Complete Circles.....	.20	"
All the above f.o.b. Philadelphia.		

Structural Material.—Business shows continued improvement and mills are more fully employed than for months past. Prices unchanged as follows—viz.: Beams, Channels and Angles, 1.53½c. to 1.65c., according to specifications, and small Angles, 1.50c. to 1.55c.

Bars.—There is a steady increase in the volume of business and Bars are freely taken at full quoted rates. There is some disappointment that Steel Bars have not been advanced, and there are fears that a larger proportion of the orders will turn in that direction, although for the present the Bar Iron mills have plenty of business and have not felt the competition to any extent. Bar Iron is quoted 1.53½c. for carload lots and over; Steel Bars, 1.43½c.

Sheets.—Business is extremely active and some very large orders have been entered. Prices are strong, with an upward tendency.

Old Material.—Prices are again higher and hard to quote with exactness. Large lots are in the hands of parties who are holding for still higher figures, so that immediately available supplies are very light. Consumers pay quoted rates only when there is urgent necessity for material to help them out. Bids and offers are about as follows for deliveries in buyers' yards:

No. 1 Steel Scrap.....	\$15.75 to \$16.25
Old Steel Axles.....	19.00 to 19.50
Old Iron Axles.....	22.00 to 23.00
Old Iron Rails.....	18.50 to 19.50
Old Car Wheels.....	14.00 to 14.50
Choice Scrap, R. R. No. 1 Wrought.....	18.00 to 18.50
Machinery Scrap.....	14.50 to 15.00
Low Phosphorus Scrap.....	18.00 to 19.00
Wrought Iron Pipe.....	14.00 to 14.50
No. 1 Forge Fire Scrap.....	12.50 to 13.00
No. 2 Forge Fire Scrap, Ordinary.....	10.00 to 10.25
Wrought Turnings.....	10.50 to 11.50
Wrought Turnings, Choice Heavy.....	11.50 to 12.00
Cast Borings.....	8.50 to 9.00
Stove Plates.....	13.00 to 13.50

John A. Walker of Jersey City, N. J., vice-president of the Joseph Dixon Crucible Company, has returned from his sixteenth voyage to Europe.

Pittsburgh.

PARK BUILDING, November 23, 1904.—(By Telegraph.)

Pig Iron.—Nothing of special interest has developed in the Pig Iron market during the past week. Inquiries have not been quite so active, and it is believed a temporary lull would be a good thing for the Pig Iron market, which has been going at a pretty rapid gait for several months. Prices are very firm, Bessemer and Basic Pig Iron for spot shipment readily bringing \$14.50 to \$15, at Valley furnace. For first quarter delivery \$15 is the minimum quotation, some sellers quoting \$15.50 and up to \$16, but we do not hear of any sales at the latter prices. Northern No. 2 Foundry Iron has sold in small lots at \$15, at furnace, and this price is quoted for first quarter delivery. Northern Forge Iron is held at \$13.25 to \$13.50, at Valley furnace, or \$14.10 to \$14.35, Pittsburgh.

Billets.—The Steel market is very strong at the advanced price, and the tonnage in Billets and Sheet and Tin Bars being placed with the mills is heavier than for some time. It is claimed that official prices are being rigidly held. We quote Bessemer and Open Hearth Billets at \$21; Forging Billets, \$23; Long Sheet and Tin Bars, \$23, and Cut Bars, \$23.50, all f.o.b. Pittsburgh, to which freight to destination is added.

Railroad Spikes.—It is probable that within a few days prices of Railroad Spikes will be advanced, owing to heavier demand and the higher prices for Billets. The minimum price of Railroad Spikes to-day is \$1.60 per 100 lbs., and this price is likely to be advanced \$2 or \$3 a ton.

(By Mail.)

As foreshadowed in this report last week, an advance of 15c. a box has been made in Tin Plate, \$2 a ton on Black Sheets, \$3 a ton on Galvanized Sheets and \$2 a ton on Wire products. These advances were made effective on November 16, and are the natural result of the increasing demand for these products and the advance of \$1.50 a ton on Billets, Sheet and Tin Bars, also made last week and noted in our previous report. No change in prices was made in Structural Steel, Plates and Steel Bars at the meetings of the associations controlling these products and held on Thursday, November 17. The whole market on Finished Iron and Steel is exceptionally strong and demand is better than for a long time. It is not believed, however, that any further advances in Finished products will be made until it is demonstrated how the trade takes hold at the higher prices. The demand for Tin Plate and Sheets is much more active, and the American Sheet & Tin Plate Company has already started its Shenango Works at New Castle, the Star Works in Pittsburgh, and is getting ready to start up three or four Sheet mills that have been idle for some time.

The Pig Iron market has been somewhat quiet in the past week in comparison with previous activity, but there is no sign of any recession in prices. On the contrary, the market is strong, and the lull in buying the past week is regarded by the Pig Iron trade as opportune, as the market could hardly be expected to maintain the degree of activity and the successive advances in prices which have been features of Pig Iron for some weeks. Bessemer Pig Iron for November and December shipment is firm at \$14.50 to \$15; Northern Forge, \$13.25 to \$13.50, and Northern No. 2 Foundry Iron at about \$15, all at Valley furnace. For delivery into first quarter and first half of next year somewhat higher prices are quoted. Makers of Pig Iron are becoming alarmed, and with good reason, at the serious situation existing in the Coke trade on account of scarcity of water in the Connellsville region. There has not been a good heavy rain in the Connellsville Coke region for about six weeks, and prospects of a better supply of water are not good until we have a heavy snow. Some of the most important Coke works are closed, and others are running only part time. The H. C. Frick Coke Company is better equipped for a water supply than some of its competitors, and is running most of its ovens full time, and is getting ready to start up some idle plants. Fancy prices are being paid for both Furnace and Foundry Coke for prompt shipment, while \$2 a ton and probably more has been paid on contracts for strictly Connellsville Furnace Coke for shipment in first half of next year.

The Scrap trade is very strong, and while inquiries are

not quite so heavy, the combination existing among a number of leading Scrap dealers is succeeding in holding prices very firmly.

That obstacle to prosperity in Pittsburgh, a shortage in cars, has already developed, and some leading plants are seriously handicapped in making shipments on account of shortage in cars. It is claimed this is due to the fact that the railroads for the past year have not kept up renewals as they should, and railroad equipment has sadly run down.

Ferromanganese.—There is a fair inquiry and prices are firm. We quote 80 per cent. foreign and domestic Ferro at \$42 to \$43, delivered, for large lots. For carloads and smaller lots higher prices are quoted.

Wire Rods.—Leading consumers of Rods are pretty well covered and demand is only fair. Prices are firm and we quote Bessemer and Open Hearth Rods at \$27 to \$28, Pittsburgh.

Skelp.—The active condition of the Pipe trade is causing a heavy consumption of Skelp and demand for some time has been quite good. We note sales of about 2000 tons of Grooved Iron Skelp, ordinary widths, at about 1.55c., Pittsburgh. We quote: Grooved Iron Skelp, 1.55c. to 1.60c.; Sheared Iron Skelp, 1.60c. to 1.65c.; Grooved Steel Skelp, 1.40c. to 1.45c., and Sheared, 1.50c. to 1.55c. These prices are for ordinary widths and gauges, f.o.b. cars, maker's mill, terms 30 days, less 2 per cent. for cash in 10 days.

Muck Bar.—Demand for Muck Bar is more active than for some time, owing to improvement in the Bar Iron situation. Prices are very firm and we quote best grades of Muck Bar, made from all Pig Iron, at \$25.50 to \$26, Pittsburgh.

Steel Rails.—Contrary to reports, no meeting of the Steel Rail pool was held last week, but a meeting may possibly be held next month. The feeling is growing that the price of \$28 for Standard Sections will be reaffirmed for next year. Only very small orders are being placed. Demand for Light Rails is fairly active and prices are firm, being on the basis of \$21.50 for heavier sections up to \$25 for light weight Rails.

Structural Steel.—No change in prices was made at the meeting of the Beam Association held last week. While the general situation is quiet there is a fair amount of inquiry, but no large orders are being placed. There is some unevenness in prices for fabricating and erection work. We quote: Beams and Channels, up to 15-inch, 1.40c.; over 15-inch, 1.50c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.40c.; Angles, 8 x 8 and 7 x 3½ inches, 1.50c.; Zees, 3-inch and larger, 1.40c.; Tees, 3-inch and larger, 1.45c. Under the Steel Bar Card, Angles, Channels and Tees under 3-inch are 1.40c., base, for Bessemer, and 1.45c., base, for Open Hearth, subject to half extras on the Standard Steel Bar Card.

Plates.—Prices of Plates were not advanced at the meeting of the association held last week. Demand for Plates is more active than for some time, and the leading Plate mills in the Pittsburgh district are pretty well fixed with tonnage for the next month or two. Prices generally are firm, but slight concessions are sometimes made on very desirable orders, especially for narrow Plates and in competition with outside mills. We quote: Tank Plate, ¼ inch thick, 6¼ to ¼ inches wide, 1.30c., base; over 24 inches wide and up to 100 inches in width, 1.40c., base, at mill, Pittsburgh. Extras over the above prices are as follows:

	Per 100 pounds extra.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edges.....	\$0.10
Gauges No. 7 and No. 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 inches.....	.05
Plates over 110 to 115 inches.....	.10
Plates over 115 to 120 inches.....	.15
Plates over 120 to 125 inches.....	.25
Plates over 125 to 130 inches.....	.50
Plates over 130 inches.....	1.00
All sketches (excepting straight taper Plates, varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)...	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
Marine, "A. B. M. A." and ordinary Fire Box Steel Plates.....	.20
Still Bottom Steel.....	.30
Locomotive Fire Box Steel.....	.50
Shell grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum, and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ¼ of 1 per cent. is allowable. Pacific Coast not included.

Sheets.—The leading Sheet interest and also the independent mills made an advance last week of \$2 a ton on Black Sheets and \$3 on Galvanized, the advance in the latter being heavier than on Black on account of the high prices.

of Spelter. Demand for Sheets is very active, some leading consumers being willing to contract through first half of next year in the belief that prices may again be advanced before long. Demand for Electrical Sheets is quite active and some good sized contracts have recently been placed. Prices of Painted Roofing Sheets were also advanced \$2 last week, the new price being \$1.60 per square. We have advanced our prices on Black Sheets \$2 a ton and quote No. 24 Black Sheets, box annealed, one pass through cold rolls, at 1.95c.; No. 26, 2.05c.; No. 27, 2.10c., and No. 28, 2.20c. We have advanced prices on Galvanized Sheets \$3 a ton, and quote Nos. 22 and 24, 2.74c.; Nos. 25 and 26, 2.92c.; No. 27, 3.11c., and No. 28, 3.30c. These prices are for carloads and larger lots and are f.o.b. cars maker's mill. Jobbers charge the usual advances for small lots from store.

Iron and Steel Bars.—As noted in this report last week, no change was made in price of Steel Bars, and none is expected until tonnage is considerably larger than it is now. It is true that new demand for Steel Bars and specifications on old contracts are heavier than for some time, but leading concerns that have continuous Bar mills which turn out a very heavy tonnage could still handle more orders than they are getting. Mills rolling Iron Bars report a good deal of tonnage being placed, and several leading concerns are pretty well sold for balance of this year. We continue to quote Refined Iron Bar at 1.40c., Youngstown, or 1.44½c., Pittsburgh. We quote Bessemer Steel Bars at 1.30c., base; Open Hearth Bars at 1.35c., base, with the usual differentials for small lots.

Railroad Spikes.—We note a moderate demand, but no change in prices, which are firm. We quote Railroad Spikes at \$1.60 in carloads, and \$1.65 in less than carloads, per 100 lbs., f.o.b. Pittsburgh.

Hoops and Bands.—Demand for Steel Hoops is fair, but there is no change in prices. We quote Steel Hoops at 1.55c. and Steel Bands at 1.30c., extras as per Steel Card. On very desirable orders for Hoops our quotation is sometimes slightly shaded.

Tin Plate.—As indicated in this report last week, the price of Tin Plate has been advanced \$3 a ton, effective November 16. It is said the leading interest and some of the independent mills have booked a very heavy tonnage in Tin Plate for delivery in first quarter and first half of next year. We have advanced prices 15c. a box and now quote 100-lb. Cokes at \$3.40 net, f.o.b. Pittsburgh, terms 30 days, or 2 per cent. off for cash in 10 days.

Merchant Pipe.—Demand for oil country goods and Line Pipe is much better than usual at this season of the year. Tonnage in Merchant Pipe is heavy and the tone of the market is very firm. Should there be further advances in prices of Raw Material it is not unlikely Merchant Pipe may be put up again before January 1. Consumers' discounts in carloads are as follows:

	Merchant Pipe.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
½ and ¾ inch.....	69	53	67	51
¾ and 1 inch.....	73	61	71	59
1 to 6 inches.....	77	67	75½	65½
7 to 12 inches.....	72	57	70½	55
Extra strong, plain ends,				
½ to ¾ inch.....	62	50	60	48
¾ to 1 inch.....	69	57	67	55
1 to 2 inches.....	65	53	63	51
Double extra strong,				
plain ends, ½ to 1				
inches.....	58	47	56	45

Boiler Tubes.—Tonnage in Boiler Tubes is improving, the railroads buying more liberally than for some time. Discounts to consumers in small lots are as follows:

	Steel.	Iron.
1 to 1½ inches.....	46	43
1½ to 2½ inches.....	58	43
2½ inches.....	60	48
2½ to 5 inches.....	66	55
6 to 13 inches.....	58	43

Discounts on Boiler Tubes in carload lots are two points lower than the above.

Merchant Steel.—Buying has been quite active in the past two weeks in anticipation of higher prices. The leading interest reports tonnage in October to have been the heaviest in any one month this year. Outside mills make similar reports, and November is also showing up very well. Prices are firm, but no higher, and we quote: Tire Steel, 1.50c. to 1.55c.; Open Hearth Spring Steel, 1.90c. to 2c., depending on order; Sleigh Shoe, flat, 1.45c. to 1.50c.; Cutter Shoes, tapered and bent, 2c.; Smooth Finished Machinery Steel, 1.50c.; Toe Calk Steel, 1.85c. to 1.90c. Cold Rolled Shafting is unchanged in price, being 52 per cent. off in carloads and 47 per cent. in less than carloads delivered in base territory.

Spelter.—The Spelter market continues very firm, and Spelter for spot shipment is higher. We quote Prime Western grades at 5.40c. to 5.43 1-3c., Pittsburgh, for spot shipment.

Coke.—The Coke situation could hardly be worse from the standpoint of supply, the leading plants getting shorter

of water right along as the days go by without rain. This unusual condition has made spot Coke very scarce and as high as \$2.25 a ton has been paid for Connellsville Coke for prompt shipment. Demand for both Furnace and Foundry is active, and it would be impossible to make contract for Connellsville Furnace Coke at less than \$2 a ton, and it is said some contracts have been made at \$2.15 a ton. Connellsville 72-hour Foundry Coke is held at \$2.25 to \$2.50 a ton, some makers reporting contracts at the higher price. Output of Coke last week fell off on account of the scarcity of water and amounted to slightly less than 190,000 tons. The Frick Coke Company is getting ready to start three or four of its Coke plants in the Connellsville region that have not been operated for some time.

Iron and Steel Scrap.—A waiting game is going on between consumers and sellers of Scrap, the former being unwilling to pay the high prices asked by sellers and the latter refusing to make concessions. We do not hear of any very large sales within the past week. We quote: Heavy Melting Scrap, \$14.50 to \$15; No. 1 Wrought Scrap, \$15 to \$15.50; Cast Iron Scrap, \$13 to \$13.50; Cast Iron Borings, \$8 to \$8.50; Busheling Scrap, \$14.50; Old Car Wheels, \$13.50 to \$13.75; Iron Car Axles, \$22 to \$22.50; Re-rolling Steel Rails, 6 feet and upward, \$15, gross; Short pieces, \$15.50 to \$16; Bundled Sheet Scrap, \$11.75 to \$12, all in gross tons, f.o.b. Pittsburgh.

Cincinnati.

FIFTH AND MAIN STS., November 23, 1904.—(By Telegraph.)

Pig Iron.—The market during the past six days has developed considerably more inquiry than was apparent when our last report was made. This is especially true as regards central territory, where we are advised that the heavier consumers are beginning to take a decided interest in the situation and are commencing to feel the market in a very strenuous manner. This shows quite a change in conditions from what they were a week or two since, as at that time very little of the Iron being purchased was by the larger consumers. The furnaces of the South are evidently more willing to dispose of their product than they were a month ago, while among Northern furnaces the reverse seems to prevail and they are doing all in their power to have consumers delay purchasing until later. We are told that there is a large amount of speculative Iron being put on the market, which under present conditions is considered as being a little out of line. Several instances are given as to consumers using their utmost endeavors to have consignments hurried forward, only to reassign them to other purchasers when received. It is reported that the railroads are gradually coming into the market, which, taken into consideration with the Steel industries increasing their output, car shops and car wheel makers showing substantial gains, all goes to prove that consumption is on the increase and that the tonnage actually handled is simply great. The leading Pipe interests of the country are, as is usually the case, in the market for considerable tonnage. During the past week one of the leading furnaces of the South sold approximately 12,000 tons to one of these concerns for home delivery which is reported to have gone at \$13.25. At one of its other factories it is said to have secured 5000 tons of odds and ends at a shade below the market price, and still needs considerable tonnage. One large concern in northern Ohio is in the market for about 8000 tons for first-quarter delivery. Other calls are for 6000 tons from a wheel concern and 3000 tons from another industry. All things considered, the week has been a very satisfactory one in many ways. Freight rates from Hanging Rock district to Cincinnati, \$1.15, and from Birmingham, \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$16.25 to \$18.50
Southern Coke, No. 2.....	15.75 to 16.00
Southern Coke, No. 3.....	15.25 to 15.50
Southern Coke, No. 4.....	14.75 to 15.00
Southern Coke, No. 1 Soft.....	16.25 to 16.50
Southern Coke, No. 2 Soft.....	15.75 to 16.00
Southern Coke, Gray Forge.....	14.50 to 14.75
Southern Coke, Mottled.....	14.25 to 14.50
Ohio Silvery, No. 1.....	18.15 to 18.65
Lake Superior Coke, No. 1.....	16.15 to 16.65
Lake Superior Coke, No. 2.....	15.65 to 16.15
Lake Superior Coke, No. 3.....	15.15 to 15.65

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$17.75 to \$18.25
Lake Superior Car Wheel and Malleable.....	17.00 to 17.50

Coke.—The market is very active, although complaint is made that from several causes there is a scarcity of visible supply. Many of the ovens now out of blast are expected to be in operation in the next few days. Prices are firm and unchanged, the best grades selling at \$2.50, f.o.b. ovens.

Plates and Bars.—The demand is said to be on the increase, with a fairly normal business being done. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.50c., with half extras; the same in smaller lots, 1.70c., with full extras; Steel Bars, in carload lots, 1.43c., with half extras; the same in smaller lots, 1.65c., with full extras; Base Angles, 1.53c., in carload lots; Beams and Chan-

nels, in carload lots, 1.53c.; Plates, $\frac{1}{4}$ -inch and heavier, 1.53c., in carload lots; in smaller lots, 1.80c.; Sheets, 16-gauge, in carload lots, 2.05c.; smaller lots, 2.60c.; 14-gauge, in carload lots, 1.95c.; in smaller lots, 2.50c.; Steel Tire, $\frac{3}{4}$ x 3-16 and heavier, 1.63c., in carload lots.

Old Material.—Conditions are somewhat easier and trade is reported to be more active. Considerable tonnage in small lots is said to have changed hands and the outlook is better than for several weeks. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, \$10.50 to \$11.50 per net ton; No. 1 Cast Scrap, \$10 to \$10.50 per net ton; Iron Rails, \$14 to \$14.50 per gross ton; Steel Rails, rolling lengths, \$10 to \$11 per gross ton; Re-laying Rails, \$18 to \$19 per gross ton; Iron Axles, \$14 to \$15 per net ton; Car Wheels, \$10 to \$10.50 per gross ton; Heavy Melting Scrap, \$9.50 to \$10.50 per gross ton; Low Phosphorus Scrap, \$11.50 to \$12 per gross ton.

Cleveland.

CLEVELAND, OHIO, November 22, 1904.

Iron Ore.—The spurt in buying which was noted a week ago was of short duration. It had natural limits, which were fixed by the ability of the transportation companies and by the amount of Ore which remained unsold upon the docks. Some of the shippers had pushed forward an amount of Ore greater than their sales, which had been brought down in anticipation of such a buying movement as later developed. It is now being shown that this amount was larger than had been supposed and therefore, that the needs for bringing Ore down the lakes will not be so large as had been supposed. Nevertheless a record movement for November will have been accomplished by the end of this month. The estimates of shipments, amounting to 4,000,000 tons, still hold. It is hardly likely that any extended shipments will be made after the insurance season has ended, and movements in uninsured boats will be the exception rather than the rule. Estimates are still of a shipment running above 20,000,000 tons. The rates of carriage have been advanced during the week and now the charges are based on 80c. from Duluth, 75c. from Marquette and 65c. from Escanaba, with the generality of the movement being from Duluth and Escanaba, the shipments from Marquette easing some, as is usual at this time of the year.

Pig Iron.—Buyers are not moving with quite so much vim as they did, but are more sober about it. One consideration which has come to play a part is the fact that there is still a good deal of idle capacity which will have to be counted upon sooner or later, and the addition of these furnaces to the productive capacity will ease a situation which has gradually been strained during the rather feverish times here in Pig Iron during the past few weeks. Buyers are still presenting a good volume of business, but the furnaces are finding it harder to get higher prices. Some of the furnaces having Iron for immediate shipment are now able to obtain \$15.50, at the furnace, when the consumer needs the material and finds it hard to get the amount at the time wanted. For delivery during December, however, it is not difficult to get No. 2 Foundry at \$15, at the furnace, and sales have been made at that price during the week. A number of those having spot Iron have withdrawn from the market. Buyers have come into the market for good sized lots for delivery running through the first half of the year. One inquiry was received Monday for 9500 tons for first half delivery, mostly Scotch. This material was optioned at \$15 in the Valleys for No. 2 for first half delivery, and the transaction will be recorded later in the week. Other lots of good size have been coming on the market. The furnaces are now selling freely on the basis of \$15 in the Valleys for No. 2 for delivery through the first half, and that has come to be the ruling price. The Basic situation is unchanged, most of the furnaces being off the market. The buying of Malleable is good, with prices holding about \$14.50 to \$15 in the Valleys. The Bessemer trade is quiet, with small sales reported at \$15.50 in the Valleys. This price is not general.

Finished Iron and Steel.—The market here is not quite so bullish as it was. Winter is close at hand and many of those transactions which are based on outdoor construction will naturally be easier in a short time. Sales are not being urged, since a much heavier business would warrant higher prices, which some of the factors in the situation now wish to avoid. The one situation which is perhaps of the most importance is the Bar Iron trade. The mills are now making the assertion that at the present price of Scrap they cannot afford to sell Bar Iron under 1.60c., Youngstown, which is, of course, out of the question with Bar Steel selling at 1.30c., Pittsburgh. Many of the Bar Iron makers have therefore withdrawn from the market until the prices of Scrap have been lowered or the price of Bar Steel has been advanced. This has naturally lessened the amount of Bar Iron for sale and has turned many of the consumers, who can do so to the use of Bar Steel. This accounts in a large measure for the heavier buying of Steel Bars. That a better price for Bars is anticipated is indicated by the fact that many of the mills have given instructions that no sales of

Bar Steel are to be made entailing delivery past January 1. There is a better feeling in the Structural and Plate trades. The mills are unwilling to make unlimited sales on either of these materials because of the amount of business that has already been booked and because of the anticipation that prices will be advanced. The buying of Structural Shapes has been more general, the orders coming in from a variety of sources. The best buyers have been building contractors and shipbuilding companies. The largest shipbuilding company has about covered immediate requirements. There has been good buying of Plates from largely the same source as that which caused the buying in Shapes. In both the market is strong, shipments against contracts being heavier than the original contracts called for. There has been a good business in Sheets during the past week. The buying before the advance in price took place was very heavy, followed by easier times after the advance went into effect. Some are apprehensive that the higher prices will turn a good deal of business over to the smaller concerns, which were disturbing factors before the advanced price was announced. The prices on Sheets out of stock, which includes most of the business done in this territory, have been revised. The following prices about represent the market here: Black Sheets, No. 10, 2c.; No. 12, 2.05c.; No. 14, 2.10c.; No. 16, 2.20c.; Nos. 18 to 20, 2.25c.; Nos. 22 to 24, 2.40c.; No. 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c. Galvanized Sheets, No. 16, 2.75c.; Nos. 18 to 20, 2.85c.; Nos. 22 to 24, 3c.; No. 26, 3.20c.; No. 27, 3.40c.; No. 28, 3.60c. The basis for one pass cold rolled, in car lots at the mill, is found in the quotation of 2.10c. There has been fair buying of Billets, which did not stop when the advance was put on. Most of the buyers here had been paying a premium and expected the advance. The quotation is now \$22.40, Cleveland, on Bessemer 4 x 4 inch. There is still good buying in Light Rails, on which most of the sales are made at a premium of \$1 a ton.

Old Material.—The Scrap market has been more vigorous, with dealers asking higher prices, but with buyers balking and sales therefore being limited. The market is slightly revised and quoted about as follows, all gross tons: Old Steel Rails, \$14 to \$14.50, with higher prices quoted on some sales; Old Car Wheels, \$12.50 to \$14; Heavy Melting Steel, \$12.50 to \$14. All net tons: Cast Borings, \$6; No. 1 Busheling, \$12; No. 1 Railroad Wrought, \$12.50 to \$13; Iron Car Axles (nominal, some sizes selling higher), \$17 to \$18; No. 1 Cast, \$12; Stove Plate, \$9 to \$9.50.

The New York Machinery Market.

NEW YORK, November 23, 1904.

Reports of an increasing spirit of optimism are to be heard in all sections of the machinery trade. These reports are so thoroughly universal that there can be no doubt that purchasers are coming into the market with renewed vigor, and not only are those who have had inquiries out for some time coming forward now with their orders, but new inquiries are coming into the market in goodly volume. In view of the fact that the end of the year is so close at hand, machinery merchants do not presume to hope that any great rush of business can be looked for within the next month or so. Nevertheless they are unanimous in the belief that the present increased business will pull up the year's total somewhat and enable them to present a much better balance sheet than they had any reason to hope for but a few weeks ago. What seems to be foremost in the expectations and predictions of the trade is that next year will open with an activity that may reach the proportions of another industrial "boom." Present indications seem to justify such an assumption in several ways.

The machine tool trade is enjoying a special spurt of activity. In fact, in certain standard lines, and particularly in small and medium sized lathes, there is now a famine so far as immediately available stock is concerned. This is due, of course, to the very extraordinary drain which has been placed upon available supplies by the interests supposed to be working in behalf of the Japanese Government. It is estimated in the trade that these interests have since the summer months purchased in this market about 1400 lathes. While this figure may be something of an exaggeration, as it is said to be by an officer of a large machine tool house who has been in close touch with the interests referred to, it is well known that all of the American lathe builders are not only cleaned out entirely of their surplus stock of small and medium sized lathes, but have taken on orders for a very considerable number of additional tools. Some manufacturers have guarded against exhausting their resources entirely so as to permit them to have something to offer to the home trade. Others, it is said, tempted by good prices, sold their product for some time ahead. Machinery merchants in this city have also placed very substantial orders with their manufacturing principals in anticipation of future demands of the home trade.

Considerable interest has been shown in the publication of the naval estimates for the fiscal year ending June 30, 1906. These aggregate \$114,530,638, showing an increase of \$17,372,448 over the last appropriation. The total esti-

mates under the heading "Increase of the Navy" include for construction and machinery, \$30,410,833; for armor and armament, \$14,000,000, and for equipment, \$845,000. These figures involve an increase of \$13,428,973 over the last appropriation. For the improvement of water front of the New York Navy Yard the estimate is \$750,000, and under the heading of "Public Works" an estimate of \$200,000 is made for equipping navy yards for the construction of war vessels. Under the headings of the various departments are the following appropriations of interest: Bureau of Supplies and Accounts, \$5,883,932; Bureau of Construction and Repairs, \$8,410,024; Bureau of Steam Engineering, \$4,322,720. Among the estimates under yards and docks are the following for the navy yards named: Boston, \$418,810; Charleston, S. C., \$807,000; Guantamo, \$275,000; Key West, \$49,000; League Island, \$597,500; Mare Island, \$280,900; New Orleans, \$135,000; New York, \$990,200; Norfolk, \$372,000; Olongapo, Philippine Islands, \$120,000; Pensacola, \$293,000; Portsmouth, N. H., \$565,900; Puget Sound, \$385,500; San Juan, \$416,000; Washington, \$328,200. Of the total of these amounts \$4,157,000 is for new items, \$557,000 being for Charleston, S. C.; \$313,400 for Boston, \$258,000 for League Island, \$136,400 for Mare Island, \$851,000 for New York, \$209,000 for Norfolk, \$246,500 for Pensacola, \$530,300 for Portsmouth, N. H.; \$179,500 for Puget Sound, \$416,000 for San Juan, \$220,900 for Washington.

The announcement yesterday that bonds to the amount of \$25,800,000 were sold by the Pennsylvania Railroad interests excited considerable comment in the machinery trade, because it is believed that provision of additional funds in this matter will hasten the purchase of immense quantities of machinery for which the Pennsylvania Company has already obtained bids, but has as yet failed to purchase. It is stated that a large part of the additional funds will be devoted to the purchase of rolling stock, and it is taken that this will relieve the pressure upon the regular funds of the company, so that the necessary cash for the extraordinary purchases contemplated in the way of machinery will be available. While referring to this company it might be well to note that while of course small orders have been sent out almost daily, nothing has been done as yet in the way of buying the proposed machinery equipment in anything like considerable quantities. From reports which we receive at various points there are evidences that the company is preparing to go ahead with the mooted improvements in its shop system, and it is taken in the trade that the last obstacle standing in the way has been eliminated by the procuring of additional funds.

A statement was issued last Monday by the New York, New Haven & Hartford Railroad summarizing the improvements in progress between New York and New Haven. It shows that nearly \$20,000,000 is involved in the work, which includes the electrification of the Hudson River branch to New Rochelle, the purchase of 20 locomotives of a new type, the installation of three bridges, and other work such as the elevation of tracks and station changes. The work is being hastened to the utmost and large expenditures are being made for machinery.

Contracts are still being placed by the New York Central & Hudson River Railroad for equipment to be installed in the electric power stations at Yonkers and Port Morris, N. Y. It will be recalled that the contracts for the bulk of this equipment were placed some time ago. Within the last week the contract for the complete equipment of coal and ashes handling machinery was awarded to the Exeter Machine Works, 26 Cortlandt street, New York, and Pittston, Pa. There are still a number of items to be decided upon, including principally the auxiliary steam appliances and specialties.

Work is about to commence in active fashion on New York's \$101,000,000 barge canal. Charles S. Boyd, superintendent of Public Works, has issued from his offices at Albany, N. Y., specifications for six sections of the work. According to the latest estimate the approximate cost of the work on these six sections will be \$5,771,617. The bids will be received between December 15 and 17. The following summary of the work to be done on the various sections will give an idea of the character of the operations and nature of machinery and appliances required in the work:

Section 1. For excavating the Hudson River channel from Northumberland to Fort Miller and from Crocker's Reef to Fort Edward; construction of Crocker's Reef dam and approaches to the head of the land line and other incidental work, 7½ miles in all; estimate, \$712,823.

Section 2. Excavation and protection of the sides of the canal on the Mohawk River to a point one-fourth of a mile west of Lock 3; construction of Locks 2 and 3, with approaches, &c.; estimate, \$1,176,036.

Section 3. Excavation of canal and protection of banks below Lock 6, at Fort Miller, and its approaches at guard gate above Crocker's Reef; construction of Lock 6, guard gate and approaches, bridge abutments and foundations; removal and re-erection of bridge at E street; the change in location of old Champlain Canal; estimate, \$874,662.

Section 4. Construction of canal and appurtenances from the foot of Lock 25 to the deep waters at the foot of Oneida Lake, 4.83 miles; estimate, \$934,444.

Section 5. For construction of canal and its appurtenances from near Mosquito Point Bridge over Seneca River to east of village of Savannah, 5.66 miles; estimate, \$484,440.

Section 6. Excavation of canal south of Buffalo Road, Lyall Avenue, Niagara Falls Branch of the New York Central Railroad, Lee Road and Spears Bridge Road, and incidental work; estimate, \$1,588,912.

The Department of Public Works, Philadelphia, Pa., has just awarded contracts for the construction of preliminary filters at the Torresdale and Belmont filtration plants to Daniel J. McNichol for \$1,334,000 and \$218,000, respectively. In his report Director of Public Works Costello states that "we need additional pump and boiler facilities at the Belmont pumping station, and hope to have available within a few weeks \$300,000 for this purpose."

The Isthmian Canal Commission, Washington, D. C., will receive bids until November 20 for three unloading machines, three unloading plows and three earth spreaders for use on the Isthmus of Panama.

The unloading machines, of which one is to have not less than 100,000 pounds traction power and the other two not less than 50,000 pounds traction power, are to be used in unloading earth and rock from flat cars. Each machine is to be furnished complete with steel car with flexible connection for carrying steam from locomotives to unloading car and with suitable wire cable 1500 feet long. They are to be designed for operation with steam at 100 pounds pressure. There are to be furnished with the unloaders two extra flexible steam connections, one extra 1½-inch cable 1500 feet long for the large unloader and one extra 1¼-inch cable for the small unloaders; one dozen 1¾-inch and one dozen 1¼-inch Crosby clips.

The plows are to be high hand unloaders, two of them arranged for use on flat cars having a width of 9 feet between side stakes, and one for use on flat cars having a width of 8 feet 9 inches between stakes on one side and gondola side on the other side of the car.

The spreaders must be of a type now in successful use and should be equipped with a compressed air tank and pneumatic control of the position of the wings and have attachment to permit the use of steam in the place of air should it be found more desirable to use steam. Spreader with a wing on one side or wings on both sides may be offered, but the spreaders with wings on both sides will be given preference.

Manning, Maxwell & Moore, selling agents for the Shaw Electric Crane Company of Muskegon, Mich., have just been awarded the contract for two 75-ton special steel casting ladle cranes, having 25-ton auxiliary hoists, to be installed in the plant of the Nova Scotia Steel & Coal Company, Sidney Mines, N. S. These cranes will contain a number of new features of construction.

Several of the buildings of the Pennsylvania Railroad shops at Trenton, N. J., are now under roof and in readiness to receive their machinery equipment. So far as we can learn this has not yet been purchased.

The Blanchard Machine Company, Boston, Mass., which was burned out in a recent fire, is planning to erect a new shop at Cambridge. The building will provide 12,000 square feet of floor space on two floors. There will be little salvage on the machinery in the old shop. Most of it went through into the basement, and the remainder is of comparatively little use. Consequently the company will be in the market for new tools. The company saved its books, drawings and a large number of its more important patterns. The new plant had been planned before the fire to provide needed additional manufacturing space, but would not have been erected so soon had it not been for the immediate necessity. The work of erection will be rushed.

Shipment is now being made of the equipment for the new armor plate department of the Midvale Steel Company. This equipment includes several machine tools which will be the most powerful of their type ever constructed, and the value of the entire contract aggregates \$300,000. The machines are being furnished by the Niles-Bement-Pond Company.

The Exeter Machine Works, 26 Cortlandt street, New York, and Pittston, Pa., has been awarded the contract for the coal and ashes handling machinery to be installed in the new power house of the Nassau Light & Power Company, Glenhead, L. I.; also for similar apparatus to be installed at the Park shops of the Pennsylvania Railroad at Philadelphia.

Contracts for equipment of the power station to be built at North Cumberland, Pa., by the North Cumberland Electric Light & Power Company have been divided up among the makers of the various items of equipment instead of being placed with one concern, as it was originally supposed would be the case. The principal items of equipment ordered are Skinner engines, Fort Wayne generators and the Heine boilers.

The Public Service Corporation of New Jersey is increasing the capacity of its boiler plant at its Fourteenth street power station, Hoboken, N. J., and has just placed an order with the Babcock & Wilcox Company for 3000 additional horse-power of boilers. The contract for fuel

economizers for this plant was awarded to the Green Fuel Economizer Company, 74 Cortlandt street.

Some new machinery will probably be required by S. P. Pearson & Co., 74 Monroe street, New York, who have bought the ice factory property at 315 to 325 East Ninety-seventh street, which they will occupy as a structural iron works. As soon as the property can be cleaned up, the machinery in the buildings gotten out of the way and the necessary alterations made the firm will move its present equipment into the new quarters.

It is the intention of the Detroit Southern Railroad Company to build new shops on the main line as soon as the proper site can be located. The citizens of Springfield, Ohio, have raised considerable money with which to purchase ground for the shops, but it seems that the inducements offered were not satisfactory, and it is probable that the company will build elsewhere. The matter is in charge of J. C. Homer, superintendent of motive power and equipment, Springfield, Ohio.

The firm of H. B. Underwood & Co., 1025 Hamilton street, Philadelphia, Pa., manufacturers of special tools for railway repair shops, are about to build an addition to their plant, which will increase the floor space about 4000 square feet. The additional space will be used for general machine shop purposes, and the necessary machinery will soon be purchased.

The following are the bids received November 8 for machine tools for the Portsmouth, Boston, New York, League Island, Norfolk and New Orleans navy yards:

- Bidder 1. Drew Machinery Agency, Manchester, N. H.
2. North Penn Iron Company, Philadelphia, Pa.
3. J. D. Westbrook, Norfolk, Va.
4. The Camden Iron Works, Camden, N. J.
5. Prentiss Tool & Supply Company, New York.
6. Wm. Sellers & Co., Philadelphia, Pa.
7. Buffalo Forge Company, Buffalo, N. Y.
8. Bethlehem Steel Company, South Bethlehem, Pa.
9. The Fairbanks Company, New York.
10. Alliance Machine Company, Alliance, Ohio.
11. Handlan-Buck Mfg. Company, St. Louis, Mo.
12. Edward J. Etting, Philadelphia, Pa.
13. George F. Blake Mfg. Company, New York.
14. Chicago Pneumatic Tool Company, New York.
15. Sherman-Brown-Clements Company, New York.
16. The Morgan Engineering Company, Alliance, Ohio.
17. Manning, Maxwell & Moore, New York.
18. Wm. H. Wood, Media, Pa.
19. New Jersey Foundry & Machine Company, New York.
20. Brown Hoisting Machinery Company, New York.
21. Rand Drill Company, New York.
22. Alfred Box & Co., Philadelphia, Pa.
23. Laidlaw-Dunn-Gordon Company, New York.
24. Henshaw, Bulkley & Co., San Francisco, Cal.
25. American Tool Works Company, Cincinnati, Ohio.
26. Beaudry & Co., Boston, Mass.
27. The Garry Iron & Steel Company, Cleveland, Ohio, informal; no guarantee.
28. Motley, Green & Co., New York.
29. W. H. C. Lee, New York.
30. Joseph T. Ryerson & Son, Chicago, Ill.
31. The American Well Works, Aurora, Ill., informal; no guarantee.
32. W. L. Sargent, Fitchburg, Mass.
33. Northern Engineering Works, Detroit, Mich.
34. Diamond Drill Machine Company, Birdsboro, Pa.
35. M. T. Davidson, Brooklyn, N. Y.
36. Ingersoll-Sargent Drill Company, New York.
37. Industrial Works, Bay City, Mich.
38. Cleveland Punch & Shear Works Company, Cleveland, Ohio.
39. The Long & Allstatter Company, Hamilton, Ohio.
40. Dietrick & Harvey Machine Company, Baltimore, Md.
41. New Doty Mfg. Company, Janesville, Wis.
42. Williamson Bros. Company, Philadelphia, Pa.
43. Mechanics Machine Company, Rockford, Ill.
44. Pawling & Harnischfeger, Milwaukee, Wis.
45. A. D. Granger & Co., New York.
46. Whiting Foundry Equipment Company, Harvey, Ill.
47. The Gardner-Governor Company, Quincy, Ill.
48. The Platt Iron Works Company, Baltimore, Md.
49. Wellman-Seaver-Morgan Company, Cleveland, Ohio.
50. Wm. E. Shipley, Philadelphia, Pa.
51. Bullard Machine Tool Company, Bridgeport, Conn.
52. Walter H. Foster Company, New York.
53. Fischer Foundry & Machine Company, Pittsburgh, Pa.
54. Niles-Bement-Pond Company, New York.
55. Vanduyck-Churchill Company, New York.
56. Browning Engineering Company, Cleveland, Ohio.
57. Scully Steel & Iron Company, Chicago, Ill.
58. Cleveland Crane & Car Company, Wickliff, Ohio.
59. Laconia Car Company Works, Boston, Mass.
60. McMyler Mfg. Company, Cleveland, Ohio.

Class 1. One improved patent head engine lathe—Bidder 17, \$2000 and \$2245; 50, \$2145; 54, \$2150.

Class 2. One 48-inch improved patent head engine lathe,

with 20-foot bed—Bidder 17, \$3873 and \$4050; 50, \$4330; 54, \$3930 and \$3530.

Class 3. One 42-inch improved patent head engine lathe, with 25-foot bed—Bidder 17, \$3400 and \$3700; 50, \$4110; 54, \$3750 and \$3440.

Class 4. One 36-inch improved patent head engine lathe, with 15-foot bed—Bidder 17, \$2600 and \$2250; 50, \$2600; 54, \$2576.

Class 5. One triple geared engine lathe—Bidder 6, \$5840; 9, \$6000; 17, \$5050; 32, \$7180; 54, \$6260, \$5530 and \$5795.

Class 6. One pattern maker's lathe, motor driven—Bidder 5, \$1145; 17, \$940.

Class 7. One planing machine, motor driven—Bidder 5, \$4495; 6, \$5455; 9, \$5500; 11, \$4378; 17, \$3732; 54, \$4020.

Class 8. One planing machine—Bidder 6, \$4040; 17, \$7800; 38, \$7273; 54, \$7000.

Class 9. One set No. 8 plate bending rolls, motor driven—Bidder 1, \$8990; 8, \$12,488.32; 17, \$8350; 38, \$8587; 41, \$7500; 53, \$8956.56; 54, \$7250 and \$4240; 57, \$8615.

Class 10. One set No. 4 plate straightening rolls, motor driven—Bidder 1, \$7148; 12, \$6900; 17, \$4900; 34, \$6290; 41, \$5750; 53, \$7035; 54, \$4970; 57, \$9777.

Class 11. One set horizontal heavy rolls for bending boiler shell plates—Bidder 1, \$10,545; 4, \$5390; 8, \$12,062.85; 12, \$9500; 17, \$8340; 18, \$8975; 38, \$8748; 53, \$9660; 54, \$7500; 57, \$8595.

Class 12. One pipe flanging and expanding machine—Bidder 57, \$3565.

Class 13. One pipe flanging and expanding machine, motor driven—Bidder 57, \$3465.

Class 14. One 18-inch electrically driven cold saw cutting off machine, motor driven—Bidder 34, \$765; 54, \$672; 55, \$674.

Class 15. One 18-inch cold cutting off machine—Bidder 34, \$445; 54, \$670; 55, \$655.

Class 16. One engraving machine—Bidder 9, \$865; 54, \$798.

Class 17. One band sawing machine—Bidder 9, \$470; 17, \$595.

Class 18. One motor driven Scriven horizontal punching beam—Bidder 24, \$7250.

Class 19. One three-spindle milling machine—Bidder 17, \$3750; 52, \$4572.50.

Class 20. One four-spindle planer type milling machine—Bidder 17, \$6090; 52, \$5933; 54, \$6300.

Class 21. One motor driven bar iron shear—Bidder 1, \$947; 4, \$695; 12, \$890; 17, \$1025; 38, \$845; 41, \$780; 53, \$892.50; 54, \$1240; 57, \$1085.

Class 22. One No. 3 angle shear—Bidder 1, \$2315; 4, \$1950; 9, \$2650; 10, \$2600; 12, \$2275; 17, \$2500; 34, \$2525; 38, \$2293; 41, \$3100 and \$3225; 53, \$2299.50; 54, \$2120; 57, \$3032.

Class 23. One rotary bevel shear—Bidder 18, \$1095; 30, \$1080; 34, \$725; 57, \$1156.

Class 24. One rotary splitting shear—Bidder 34, \$1300; 54, \$3000.

Class 25. One 60-pound helve hammer, motor driven—Bidder 17, \$560; 26, \$450; 54, \$545.

Class 26. One 800-pound single stand steam hammer—Bidder 1, \$995; 5, \$989; 6, \$790; 9, \$966; 10, \$927; 11, \$970; 16, \$950; 17, \$850; 18, \$900; 28, \$1000; 54, \$780; 57, \$1158.

Class 27. One duplex air compressor—Bidder 14, \$3775; 17, \$4100; 21, \$4840 and \$4645; 23, \$4490, \$4900, \$5250 and \$5450; 36, \$4100.

Class 28. One deck winch—Bidder 3, \$671.71; 15, \$529.49; 17, \$675, \$535 and \$499; 19, \$1010; 28, \$575; 42, \$625.

Class 29. One No. 3 full universal Bickford radial drill—Bidder 17, \$1670; 25, \$1753; 50, \$1859; 54, \$1525.

Class 30. One 16-inch sensitive drill press—Bidder 9, \$149.

Class 31. One 28-inch drill press—Bidder 9, \$355; 17, \$205 and \$210; 54, \$340.

Class 32. One 13-inch sensitive drill press, one spindle—Bidder 9, \$130; 43, \$78.

Class 33. One 300-ton 50-inch double quick hydrostatic car wheel press—Bidder 1, \$1590 and \$1990; 4, \$1725; 5, \$1490; 9, \$1547; 10, \$1625; 17, \$1800; 18, \$1690; 54, \$1925, \$1700 and \$1500; 57, \$1650.

Class 34. One motor drive outfit for size B, Long & Allstatter beam punch—Bidder 39, \$515.

Class 35. One motor drive outfit for 51-inch Bullard vertical boring and turning mill—Bidder 51, \$577.

Class 36. One motor drive outfit for Dietrick & Harvey 48-inch open side planer—Bidder 40, \$430.

Class 37. One motor drive outfit for Bement-Miles No. 4 combination punching and shearing machine—Bidder 54, \$535.

Class 38. One motor drive outfit for William Sellers & Co.'s combined punching and shearing machine—Bidder 6, \$450; 54, \$475.

Class 39. One motor drive outfit for double angle shear—Bidder 17, \$975; 54, \$436.

Class 40. One motor drive outfit for horizontal bender—Bidder 17, \$525; 54, \$410.

Class 41. Two 15-ton three-motor electric traveling

cranes—Bidder 2, \$7580; 5, \$7150 and \$6410; 6, \$7580; 10, \$7204; 16, \$6890; 17, \$6956; 22, \$6000 and \$6400; 33, \$7190, \$7080, \$6700 and \$6800; 44, \$6900; 46, \$7890 and \$7390; 49, \$7994; 54, \$7000; 56, \$6576.

Class 42. Two 40-ton three-motor electric traveling cranes—Bidder 2, \$13,580; 5, \$10,820 and \$10,250; 6, \$11,800; 10, \$12,238; 16, \$12,740; 17, \$12,492; 33, \$11,180, \$10,700, \$10,740 and \$10,280; 44, \$12,500; 46, \$12,320 and \$11,500; 49, \$12,154; 54, \$10,150; 56, \$12,560.

Class 43. One 10-ton pulley block bridge traveling crane, also one 3½-ton and two 2-ton cranes—Bidder 2, \$4177; 10, \$3700; 17, \$2912; 18, \$2900, items 1 and 2; 19, \$5000; 20, \$2963; 22, \$3550; 33, \$3270 and \$3130; 56, \$4060; 58, \$3145.

Class 44. One 10-ton locomotive crane—Bidder 2, \$5950; 10, \$7089; 20, \$8000; 33, \$4986 and \$4800; 37, \$5475 and \$5965; 49, \$6700; 56, \$5490 and \$4990; 60, \$7000.

Class 45. Furnishing and installing one 2-inch vertical shaft, centrifugal pump—Bidder 4, \$480; 13, \$310; 29, \$475.21 and \$426.73.

Class 46. One steam pump, duplex—Bidder 1 \$1299; 7, \$1090; 9, \$1275; 13, \$1200; 45, \$1290; 48, \$1294.

Class 47. Two compound duplex outside plunger pot valve pumps—Bidder 1, \$3486; 7, \$2940; 13, \$1698; 35, \$5320; 45, \$1782; 47, \$1600; 48, \$1924.

Class 48. One combined steam and hand steering engine—Bidder 17, \$1350; 42, \$1350.

Class 49. Three 32-foot drop side coal cars—Bidder 59, \$2340.

The following is a list of the machine tools for the New York and League Island navy yards bids for which will be opened December 13 at the Bureau of Supplies and Accounts, Navy Department, Washington:

Class 1. One 16-inch engine lathe, motor driven, 4 feet between centers.

Class 2. Three 16-inch motor driven engine lathes with 6-foot bed.

Class 3. One 18-inch engine lathe, 99 inches between centers.

Class 4. One 14-inch engine lathe with 6-foot bed.

Class 5. One 14-inch screw cutting engine lathe with 8-foot bed and geared quick change feed.

Class 6. One 25 and 39 inch back geared motor driven extension gap lathe, with bed not over 11 feet long.

Class 7. One 1 x 10 inch new model turret lathe.

Class 8. One 3 x 36 inch new model turret lathe, motor driven.

Class 9. One 8 x 12 inch shaper, traversed head, swivel base vise, hand and power attachment.

Class 10. One 20 x 19 inch motor driven pillar shaper.

Class 11. One 16 x 16 inch x 4 foot tool room planer.

Class 12. Four electrically driven deck winches.

Class 13. One magnetic chuck for use on planer or surface grinder.

Class 14. One universal tool grinding and shaping machine, capacity for grinding tools with shanks not over 2 x 1½ inches.

Class 15. One disk grinder complete with 7½ horse-power electric motor.

Class 16. One 21-inch drill press, sliding head.

Class 17. One 13-inch drill press.

Class 18. One 20-inch power feed drill press, with combined wheel and lever feed, automatic stop, stationary head.

Class 19. One motor driven metal saw.

Class 20. One universal milling machine.

Class 21. One bench filing machine.

Class 22. One file sharpening machine.

Class 23. One motor driven keyseating machine.

Class 24. One 5 horse-power direct current electric motor.

Class 25. One oil furnace for tempering tools.

Class 26. One locomotive.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until December 6 for a quantity of supplies for the New York Navy Yard.

The United States Government has just purchased from Rand Drill Company, New York, 27 Imperial pneumatic hammers and drills. These are to be used in connection with the Manila harbor improvements.

The following are the bids received November 15 for air compressors for the navy:

E. W. Bliss Company, Brooklyn, N. Y., \$48,000.

George F. Blake Mfg. Company, New York, \$48,500.

Ingersoll-Sergeant Drill Company, New York, \$59,400.

Rand Drill Company, New York, \$60,000, also \$54,000.

Platt Iron Works Company, Dayton, Ohio, \$41,400, if five or more are ordered.

Under bids opened October 25 for supplies for the Boston, Portsmouth, Newport and Narragansett Bay navy yards the General Electric Company, Schenectady, N. Y., was awarded class 3, one 1½ horse-power electric motor, \$129; Edward W. Irwin, New York, class 32, two self rotating pneumatic hand rock drills, \$199; Fairbanks Company, New York, class 36, two portable bench grinders, \$114, and Marshall T. Davidson, Brooklyn, N. Y., class 113, 30 vertical single double acting feed pumps, \$1635.

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New York.

NEW YORK, November 23, 1904.

Pig Iron.—There has been considerable activity in this market, there having been a considerable number of sales of 1000 tons and upward. Among the transactions closed have been one lot of between 9000 and 10,000 tons of No. 2 Plain at \$15.50, taken by a Lehigh Valley foundry from three furnace companies; one lot of 6000 tons of Basic Pig, for New England delivery, at close to \$15, delivered, and a lot of 2000 tons of Virginia Pig Iron. The market closes strong at \$16.50 to \$16.75 for No. 2 X Foundry and \$15.75 to \$16.25 for No. 2 Foundry, Northern brands, tidewater delivery. Southern Pig is being quoted at \$16.75 to \$17 for No. 2 Foundry.

Steel Rails.—A number of conferences have taken place during the past week, and the question of an allotment to the Lackawanna Steel Company has been discussed. This company, while it co-operated with the other makers this year, did not have a definite percentage, because its new mill was not in full operation during the whole of the year. The Colorado and Tennessee mills are not members of the association. It is proposed this year to include Angle Bars, which all the mills produce as a part of the tonnage allotted. Spikes and Bolts are only made by some of the works. Light Rails, in which there is a good business, are firm at \$20.50 to \$21 at mill.

Cast Iron Pipe.—The demand for next year's delivery is phenomenal. The volume of business would be considered large for the spring months. Coming at this time of the year it is breaking precedents. Pipe consumers all over the country appear to be moved by a common impulse to cover their estimated requirements, undoubtedly prompted by the fear of enhanced prices. Carload lots are now quoted at \$26 per net ton for 6 to 10 inch at tidewater.

Finished Iron and Steel.—The bridge business, which has long been decidedly quiet, picked up considerably during the past week. In the neighborhood of 30,000 tons of work was practically settled in the time intervening since our last report. Of this work the leading interest secured a considerable portion. Competition has been sharp, but prices on fabricated work are now gradually coming up. Those who have been holding prices firmly are now being rewarded for their position by getting some of the business which is being placed. Among the contracts covered were 5500 tons for the Pennsylvania Railroad Company, 1500 tons for the Chesapeake & Ohio, 3000 tons for the New York, Ontario & Western, 1700 tons for the Northern Pacific, 3000 tons for the Chicago & Northwestern, 3000 tons for the Fort Wayne, 1500 tons for the Atchison in Arizona. The Louisville & Nashville is now opening bids for 3800 tons, and the Elevated system in Boston is asking bids on about 10,000 tons. The building trade is rather quiet, this condition being seasonable in most parts of the country, but in this immediate vicinity the dullness is greater than usual. It is hoped that as general business improves many of the projects which have been so long held in abeyance in this locality may be taken up. The Plate trade was decidedly lively last week under the stimulus of the possibility of an advance in prices being made at the meeting of the associated manufacturers. A great deal of tonnage was entered for large consumers who thought it prudent to cover their requirements for a reasonable distance into the future. Business since then has not been so heavy, but it has kept up much better than might have been expected. Bar Iron has been advanced \$1 per ton, making the official price 1.40 base, half extras, f.o.b. Pittsburgh, which is equivalent to 1.54½¢ tidewater. Quotations at tidewater are as follows: Beams, Channels, Angles and Zees, 1.54½¢ to 1.80¢; Tees, 1.59½¢ to 1.80¢; Bulb Angles and Deck Beams, 1.64½¢ to 1.85¢; Sheared Plates, in carload lots, 1.54½¢ to 1.65¢; for Tank, 1.64½¢ to 1.80¢; for Flange, 1.74½¢ to 1.90¢; for Marine, and 1.74½¢ to 2.50¢ for Fire Box, according to specifications; Refined Bar Iron, 1.54½¢; Soft Steel Bars, 1.44½¢ to 1.50¢.

Old Material.—Dealers are holding for higher prices, and railroad offerings are rather scanty, so that at the moment the market presents an appearance of decided scarcity. In some instances buyers are excited, but generally a disposition is shown to resist the advances which have been made, as prices of finished products have not been marked up sufficiently to justify the range of prices now asked on Old Material. Prices per gross ton in New York and vicinity are approximately as follows:

Old Iron Rails.....	\$18.00 to \$19.00
Old Steel Rails, rerolling lengths.....	14.50 to 15.00
Old Steel Rails, short pieces.....	13.00 to 13.50
Relaying Rails.....	18.00 to 19.00
Old Car Wheels.....	13.50 to 14.00
Old Iron Car Axles.....	19.00 to 19.50
Old Steel Car Axles.....	17.00 to 17.50
Heavy Melting Steel Scrap.....	13.00 to 13.50
No. 1 Railroad Wrought Scrap.....	16.00 to 17.00
Iron Track Scrap.....	14.50 to 15.00
Wrought Pipe.....	11.00 to 12.00
Ordinary Light Iron.....	10.00 to 11.00
Cast Borings.....	7.00 to 7.50
Wrought Turnings.....	9.50 to 10.00
No. 1 Machinery Cast.....	13.50 to 14.00
Stove Plate.....	11.00 to 11.50

Metal Market.

NEW YORK, November 23, 1904.

Pig Tin.—The consuming demand has been very slow, and despite the fact that so far as all other metals are concerned the market has been advancing, no change of price has occurred in this particular article. Little interest has been displayed in the metal by the speculative element. Prices have remained sluggishly at about the same level as they held last week. At this writing spot and November are quoted 29c. to 29.25c., while December delivery is quoted 28.75c. to 29.25c. The London market is quoted to-day £132 12s. 6d. for spot, and £132 10s. for futures. The Banca sale will be held to-morrow in Holland, and 1800 tons will be disposed of. This is about the usual amount. The arrivals so far this month amount to 1590 tons, while about 1620 tons are now afloat.

Copper.—Prices have soared during this week. The manipulators who have been in charge of the affairs connected with this metal have lifted prices daily and appear to be conducting a most active campaign for artificial values. A great deal of fuss is being made over the large exportations, despite the fact that this is not a new story and that the indications are that this month the shipments will fall somewhat below the level held during the past few months. At the present time Lake is quoted 14.87½¢ to 15.12½¢; Electrolytic, 14.75c. to 15c., and Casting, 14.50c. to 14.75c. The London market shows a comparatively smaller advance over last week, with £66 2s. 6d. for spot and £66 7s. 6d. for futures. Best Selected is 10s. lower than it was a week ago, being quoted to-day at £70. In support of this situation it is said that during the last two days heavy realizing in Standard Copper in London has had the effect of lowering quotations. The exports so far this month amount to 13,682 tons, which is about 5000 tons less than the exportation at the same time last month. It is predicted that the total shipments for this month will run from 5000 to 6000 tons less than the total of last month.

Pig Lead.—The market is quiet and unchanged. Spot is still said to be very scarce, but the prices ruling last week still hold. Spot Lead in New York is firm at 4.60c. to 4.70c. Offerings from the West are very light and the St. Louis market is higher at 4.40c. The American Smelting & Refining Company continues to quote on a basis of 4.20c. for "shipment" Desilverized in 50-ton lots, but this quotation relates only to December shipment and at the price then ruling; consequently, it is purely nominal. The London market is firm and was quoted to-day at £13.

Spelter.—The market for Spelter is very firm and somewhat higher. Demand is fairly good and supplies are light. Spot Spelter was quoted to-day at 5.75c. to 5.87½¢. The St. Louis market has stiffened again, and is quoted at 5.55c. London cables £25 5s., an advance of 5 shillings over last week.

Antimony.—The demand for Antimony is active and supplies are scarce. Prices show a sharp advance over last week's quotations. The market closed very strong, with Cookson's quoted to-day at 9.50c. to 10c., Hallett's at 9c. to 9.50c., and other grades at 8c. to 9c.

Nickel.—The usual amount of business is passing and prices are nominally quoted for large lots at 40c. to 45c. and smaller quantities at 50c. to 60c.

Quicksilver.—The market remains the same as last week, flasks of 76½ lbs. being quoted at \$40. London is unchanged at £7 15s.

Tin Plates.—The market is unchanged in every respect. The American Sheet & Tin Plate Company quotes \$3.64 per box, f.o.b. New York, for 14 x 20 100 lb. Coke Plates, or \$3.45, f.o.b. Pittsburgh. The Swansea market remains unchanged at 12 shillings 1½ pence.

The Cincinnati Molders' Strike.

CINCINNATI, Ohio, November 23, 1904.—(By Telegraph.)—The strike of the molders in this city, which was inaugurated in September, has taken a very serious and tragic turn. At intervals there have been scenes of rioting and bloodshed, resulting in the death of two non-union molders and the destruction of a large amount of property. Injunctions have from time to time been secured that in a great measure controlled the violent. There have been rumors of dynamiting, but nothing definite was known until yesterday. Detectives have been secretly working on the case for weeks, and the result of their investigation fell like a bolt from a clear sky. Evidence has been secured that the Iron Molders' Union of North America has had an organized crowd in order to deter men from working at the struck foundries. The conspiracy shows that dynamite and wholesale murder were to be resorted to if found necessary. By the confession of an apprentice five people are implicated in the plot, among whom, it is alleged, is the president of the Iron Molders' Union of North America, Joseph Valentine, who is charged with aiding and abetting the crime. Warrants have been issued for the arrest of Mr. Valentine and three or four others who are said to be guilty of criminal acts.

HARDWARE.

THE report of the Atlantic City conventions which is given in the following pages justifies the space devoted to it. It was a great gathering, thoroughly representative of the manufacturing and distributing interests in Hardware. Men of national and international prominence in both these departments of the trade were in attendance, together with a multitude of others identified in a large and influential manner with the industrial and commercial activities in this field which is so closely related to and representative of the progress which is characteristic of the era. Among the papers embodied in the report of this gathering are two of exceptional interest and importance—that of Hon. David M. Parry, president of the National Association of Manufacturers, who was one of the distinguished guests of the manufacturers, and that of Julius C. Birge, president of the American Hardware Manufacturers' Association. In both of these there was a broad and comprehensive outlook, and questions of engrossing general interest were discussed. Other addresses and papers deal with questions of more exclusive trade significance, but at the present time of recognized practical importance.

It was evident that both the associations are in admirable working order and stronger than ever. The National Hardware Association has recently had some important accessions to its membership, and is undoubtedly the largest and most representative organization of jobbing Hardware interests in the world, including as it does nearly all of the large jobbing houses of the country. The American Hardware Manufacturers' Association is showing a marked increase not only in the number of its members, but, what is more important, in the manner in which it is taking hold of trade questions and giving the best attention to their consideration. Its president, Executive Committee and secretary, upon whom the chief burden of responsibility and labor rests, are to be credited with earnest, intelligent and successful efforts for the benefit of manufacturers in matters in which there can be concerted action.

Distinct progress is evidently being made in the matter of trade organization, and especially in the relations between the associations representative of the various interests. For a long time the jobbers were almost alone in undertaking the responsibilities and reaping the advantages of organization. Gradually and slowly at first, but earnestly and successfully, the retail merchants have formed strong associations, which are rapidly making an important place for themselves. The Manufacturers' Association is a more recent development, and only within a year or two has it recognized its important place and possibilities, and ceased to be merely a fraternal adjunct to the jobbing trade. This recognition that it as surely as the wholesale and retail distributors has a work to do should result in the safeguarding of its own special interest and in the promotion of right views and practices in the trade at large. There is thus an official guardianship, as it were, for each of the three great divisions of the trade, an opportunity for conference and co-operation in matters which concern their welfare. The special advance, however, in the practical working of trade organizations in their relations to one another which is to be noted in connection with the Atlantic City gatherings was the arranging for the official representation of the Manufacturers' Association at the next meeting of the

National Retail Hardware Dealers' Association. This should result to the advantage of both the producers and distributors as promotive of a thorough understanding in matters in which they are jointly interested. The more adequately and justly both manufacturers and jobbers appreciate the needs and interests of the retail trade the better will they be able to adjust their plans and methods so as to secure and further the interests of the great army of distributors through whom the goods they manufacture or sell find their way to the consuming public.

Massachusetts will begin its legal crusade against the trading stamp December 1, when the statute becomes operative imposing a tax of 3 per cent. on the gross receipts of every person, firm or corporation delivering trading stamps or checks, coupons or similar devices in connection with the sale of articles, entitling the holders to receive articles other than the articles sold. While the law is aimed at the trading stamp, it affects many other lines of business where premiums are offered for wrappers, coupons, trade-marks, &c. The constitutionality of the law is to be tested by the trading stamp companies. It is sincerely to be hoped in the interest of legitimate business that the law will be upheld by the Supreme Court of the State, and that the example may be followed by other States. The trading stamp is usually a nuisance to the merchant who employs it in procuring trade. He would rather be without it, and the better class of retail dealers in most places avoid it.

Condition of Trade.

The trade of the country is gradually but very satisfactorily improving, the volume of business increasing with the usual accompaniments of withdrawals of price in numerous instances and some actual advances, although so far higher prices have been moderate in number and amount. While current sales vary with the character of season and other considerations, reports from manufacturers are almost uniformly cheerful. Some representative concerns allude to good orders and prices well maintained, with indications of increased trade at improved prices. Against this, another leading house in its line of manufacture, and an important one, speaks of its trade as so large that it is embarrassed to handle it. This condition it attributes to a hand-to-mouth policy by its customers for the year past, leaving them bare of goods, the company's increases having begun in August, September and October, totaling the largest business it has ever had. Still another large and leading house, in a distinctly different channel, speaks of the volume of its sales as up to last year, which was the largest in the company's history. Between these extremes the average dealer and producer anticipate better conditions for some time to come. Collections generally are reported good, and factory officials returning from the recent trade conventions talk promisingly of the future.

Chicago.

The entire Wire list has been advanced \$2 a ton, making the new price on Nails \$1.70, base, Pittsburgh; on Smooth Wire \$1.55 and on Barb Wire \$1.85, with 15 cents higher prices at Chicago. At the new prices the American Steel & Wire Company is limiting its contracts to 60 days instead of 30 days, which was maintained as its limit before the advance. Field Fencing has advanced in price \$1.50 to \$2 a ton by reducing discounts one point. Neither Poultry Netting nor Wire Cloth has been advanced in price. The advance made in Billets and the gradually increasing cost of Wire Rods place the in-

dependent makers of Wire at a considerable disadvantage, and the \$2 a ton advance on finished products will be welcomed more by them than by any one else. Even at the new prices it is claimed that there is very little margin of profit left. Retailers all over the country are taking advantage of present prices by filling up their stocks, particularly on lines on which advances are expected in the near future, such as Conductor Pipe and Eaves Trough, Shovels, Axes and in general goods made from sheet steel, cast iron or forged from billets. Tin Plate has been advanced 15 cents per box. Holiday business is developing quite well, although the prolonged warm weather is having an unfavorable influence, particularly on Skates and Sleds. The season's business in Builders' Hardware and in Registers, Coal Hods, Furnace Scoops and the like has been phenomenal. This is also true in all articles used in harvesting, husking and handling corn. Field Fencing business in general has been better than the average owing to the prosperity of the farmers and to the fact that much business that should have been done last spring was delayed owing to the prolonged wet weather at that time.

NOTES ON PRICES.

Wire Nails.—Late on the afternoon of the 16th inst. announcement was made by the American Steel & Wire Company of an advance of \$2 per ton on Wire and Wire products. The advance went into effect on that date, although the notice was not received by the majority of the trade until the morning of the 17th, or even later. A differential of 5 cents per 100 pounds on carloads of the above commodities is to be charged to the retail trade. The date for which orders will be accepted has been extended to 60 days from the above date. It will be remembered that the limit for contracts has been 30 days since August 16, when the price of Wire Nails was reduced from \$1.90 to \$1.60, base. The new quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Carload lots.....	\$1.70
Less than carload lots.....	1.75

Miscellaneous Nails are quoted at 90 and 10 per cent. discount, usual delivery.

New York.—The advance of 10 cents per keg made by the manufacturers on November 16 has caused a like advance in the local market. Orders for current demands have been received in good volume, while business in small lots from store has been satisfactory. New York quotations are as follows: Single carloads, \$1.89½; small lots from store, \$1.95.

Chicago.—The American Steel & Wire Company advanced the price of Wire Nails last Wednesday 10 cents per 100 pounds, making the price as follows at Chicago: Carload lots, \$1.85, base; less than carload lots, \$1.90, base. At these prices orders will be taken for shipment not more than 60 days ahead. Independent makers generally have followed suit and are naming the same advance. Business is unusually heavy for this time of year, particularly locally.

Pittsburgh.—Effective on Wednesday, November 16, the American Steel & Wire Company, Pittsburgh Steel Company, and all the leading interests made an advance of \$2 a ton in prices of Wire Nails, or from \$1.60 to \$1.70 in carload lots. The large interests are willing to enter contracts at the higher price for shipment within 60 days from date of contract instead of 30 days, as was the case before the price was advanced. The market on Wire Nails has been very active for some time, jobbers anticipating requirements as far ahead as possible in view of the advance in prices generally expected and made last week. It is probable that demand will show a falling off for a time at least, as leading jobbers are pretty well covered for the next month. There is considerable delay in making prompt shipments of Wire Nails owing to scarcity of cars, and there is considerable complaint over delayed shipments. We have advanced prices 10 cents a keg, and now quote Wire Nails in carloads to either jobbers or retailers at \$1.70, and in less than carloads at

\$1.75, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days.

Cut Nails.—At the last meeting of the Cut Nail Association arrangements were made to take quick action in the event of an advance in the price of Wire Nails before the next meeting. In accordance with this arrangement the price of Cut Nails advanced 10 cents per keg on November 17. New quotations are as follows: \$1.70 and \$1.75 for carload lots and less than carload lots, respectively, f.o.b. Pittsburgh. In the East Iron Nails are quoted at the same price as Steel Nails, but in territory west of Pittsburgh and Buffalo Puddled Iron Nails are at an advance of 5 cents per keg on Steel Nails.

New York.—In the local market the price of Cut Nails has been advanced 10 cents per keg to correspond with the advance made by the manufacturers on November 17. Demand continues moderate. Quotations are as follows: Carloads on dock, \$1.84; less than carloads on dock, \$1.89; small lots from store, \$1.95.

Chicago.—While no formal announcement has been made by the Cut Nail manufacturers of an advance in prices, it is their avowed programme to follow the prices on Wire Nails, and for that reason Cut Nail manufacturers as individuals are asking 10 cents more for their product than they did a week ago. On the basis for charging the same price for Cut Nails as for Wire Nails, the Chicago figures would be \$1.86½ to \$1.91½ for Steel or Scrap Iron Nails, but lower prices than these can still be obtained.

Pittsburgh.—A meeting of the Cut Nail Association is scheduled to be held on December 8, when it is possible an advance in prices will be made to conform to the advance in Wire Nails. A leading local Cut Nail mill has taken the initiative and has advanced prices on Steel Cut Nails from \$1.60 to \$1.65 for carloads and larger lots. Demand is more active than for some time, in view of the expected advance in prices. We quote Steel Cut Nails at \$1.60 to \$1.65 in carloads and \$1.65 to \$1.70 in less than carloads, f.o.b. Pittsburgh. For Puddled Iron Nails an advance of 5 cents a keg over Steel is charged.

Barb Wire.—An advance of 10 cents per 100 pounds was made by the American Steel & Wire Company on November 16. Contracts will now be accepted for delivery within 60 days from date of same, for definite quantities only. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$1.85	\$2.15
Retailers, carload lots.....	1.90	2.20
Retailers, less than carload lots.....	2.00	2.30

Polished Fence Staples, f.o.b. Pittsburgh, are quoted at \$1.80 per keg, and Galvanized Staples at \$2.10.

Chicago.—Last Wednesday's advance on Barb Wire makes the new prices as follows: Jobbers in car lots, Painted Wire, \$2; Galvanized, \$2.30; retailers, car lots, 5 cents higher; less than car lots, \$2.15 Painted; \$2.45 Galvanized. Staples, Bright, \$1.95; Galvanized, \$2.25. Independent mills are still selling to large retailers car lot business at the official jobbers' price. Demand for Barb Wire is excellent. Even at the advanced prices there is a disposition to refuse to permit buyers to cover more than 60 days ahead.

Pittsburgh.—On Wednesday, November 16, prices of Barb Wire were advanced \$2 a ton. Demand has been very active for some time, partly on account of the mild weather, but mainly because of the expected advance in prices which has been made. We have advanced prices \$2 a ton and now quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted	Galv.
Jobbers, carload lots.....	\$1.85	\$2.15
Retailers, carload lots.....	1.90	2.20
Retailers, less than carload lots.....	2.00	2.30

Smooth Fence Wire.—The advance of 10 cents per 100 pounds made by the American Steel & Wire Company November 16 on Wire Nails and Barb Wire extends to Annealed Fence Wire. In this connection contracts will

be entered for delivery within 60 days from date of same for definite quantities only. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....\$1.55
Retailers, carloads.....1.60

The above prices are for base numbers 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized....\$0.30	.35	.40	.45	.55	.65	1.05	1.15		

Chicago.—An advance of \$2 a ton makes the new price on Smooth Fence Wire at Chicago for base gauges \$1.70 in car lots to jobbers and \$1.75 in car lots to retailers, base sizes, Annealed Wire, with 30 cents extra for Galvanized and the usual extras for lighter gauges than No. 9. At these prices buyers are not permitted to cover their needs for more than 60 days unless the Wire is put into stock.

Pittsburgh.—Prices of Smooth Fence Wire were advanced \$2 a ton on November 16, and the leading interests are now accepting contracts at the higher price for shipment within 60 days from date, instead of 30 days, as formerly. Demand has been very active for some time, but may possibly fall off a little now, as jobbers and consumers have pretty well covered for the next month. We have advanced prices \$2 a ton and now quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....\$1.55
Retailers, carloads.....1.60

Woven Wire Fencing.—Prices have been advanced by some of the manufacturers throughout the list by reducing discounts one point. This is equivalent to an advance ranging from \$1.50 to \$2 a ton. Woven fencing is still sold uncomfortably near to the cost of the Wire from which it is made.

Carriage and Machine Bolts.—The market for Carriage and Machine Bolts is characterized by a stronger tone and some of the manufacturers are quoting slightly higher prices, while others have, for a time at least, withdrawn quotations. There is a marked improvement in the demand, doubtless encouraged by the tone of the iron market and the low prices which are ruling for Bolts.

Stove and Tire Bolts.—At a meeting of the manufacturers of Stove and Tire Bolts, held last week, the base discount on Stove Bolts was made 82½ per cent. instead of 80 per cent., as heretofore. This reduction in the presence of an advancing Iron market was owing to special conditions which seemed to render this action desirable. Tire Bolts remain without change.

Heavy Hardware.—With an advancing market on the raw material, Heavy Hardware is stiffening in value and a number of articles in which the material is the principal element of cost are quoted at slightly higher prices. A firm and perhaps advancing market in this line is anticipated.

Shovels and Spades.—The condition of the Shovel and Spade market is receiving the attention of the manufacturers, with a prospect of present quotations being withdrawn more or less generally. Prices on these lines have been low and with the advancing tendency of raw material the trade would not be surprised at higher prices.

Sheet Zinc.—A further advance in the price of Sheet Zinc is announced under date 21st inst., the quotation being \$6.80 per 100 pounds in 600-pound casks, f.o.b. mill, subject to the usual discounts.

Rope.—Demand has shown a little spur since the 15th of the month, covering the general line of fiber productions. This temporary revival is attributed to release from political agitation, and also to the fact that the 19th inst. was the official closing date of navigation on the Great Lakes. During the earlier part of the month orders showed a material falling off. Manila Rope is not in very large demand, and the market on Sisal Fiber is stronger. These conditions are reflected to some extent in prices of the finished product. Quotations are as fol-

lows for 7-16 inch diameter and larger: Pure Manila, 11½ to 12 cents; mixed grades, 9½ to 10½ cents, according to quality; Pure Sisal, 9 to 9¼ cents, and Mixed Sisal, 7¼ to 7½ cents per pound.

Window Glass.—Taking the country as a whole, demand is quite active as compared with the past six months. There is nothing abnormal in the quantity or size of orders, but the trade is bare of Glass, and orders request immediate shipment. Jobbers who had placed orders before the formation of the Manufacturers' and Jobbers' Window Glass Association find manufacturers slow about filling them, and subsequent orders sent to manufacturers for shipment direct to customers are often held for some time before being shipped. Some manufacturers are refusing to quote prices, as their entire product has been sold. Others are sold up on the larger sizes of single strength and on all sizes of double strength for a month or more. Quotations on less than car lots by manufacturers who have Glass to dispose of range from 90 and 10 and 5 to 90 and 25 and 5 per cent. discount from the jobbers' list of October 1, 1903, according to factory and size of order. Dealers when ordering, in some instances, state that they prefer not to have machine made Glass. It is understood that all hope of inducing the American Window Glass Company to join the association is not abandoned, as representative jobbers have not joined the association because they do not want to go into a fight against machine made Glass. Local jobbers are quoting 90 and 15 per cent. discount for the first two brackets and 90 and 5 per cent. discount for sizes above from the jobbers' list of October 1, 1903.

Oils.—**Linseed Oil.**—Some improvement is noticed in the demand for 5 and 10 barrel lots in the local market, as continued pleasant weather has been favorable for outside painting. Some carload business in State and Western is being done on the basis of 38 cents per gallon for Raw. The demand, however, is largely confined to the purchase of small lots for immediate requirements of both city and out of town Oil. Quotations are as follows: State and Western Raw in carload lots, 39 cents; in five-barrel lots, 40 cents. City Raw, in lots of five barrels or more, 41 cents; in less than five barrels, 42 cents per gallon.

Spirits Turpentine.—The market is devoid of interesting features, and continues inactive at this point. Demand is confined to small lots on a somewhat weak market. Prices have declined about ½ cent during the week, and present quotations can probably be shaded ¼ cent per gallon. Quotations in New York, according to quantity, are as follows: Oil barrels, 53½ to 54 cents; machine made barrels, 54 to 54½ cents per gallon.

INTERNATIONAL HARVESTER COMPANY MAKES CONCESSIONS.

IN our issue of November 3 we alluded to the conference between officers of the leading retail Implement and Vehicle dealers' associations and the International Harvester Company with reference to the modification of certain clauses in the 1905 sales contract, which were objectionable to dealers, and the correction of other abuses which had crept into the trade. The *Farm Implement News* is authority for the following lists of requests presented to the International Harvester Company and the replies of that company, by which it will be seen that the association was accorded either complete or partial compliance with their request. The same requests were made by the committee of the Acme Harvester Company and other independent harvester machine makers, the only reply thus far received being from the Acme Harvester Company of Peoria, Ill., who agree in the requests as far as they apply to doing business with that company.

What the Dealers Asked.

The requests submitted are as follows:

1. That you market your product only through regular retail Implement dealers.
2. That you discontinue all canvassers and allow agents a reduction in the net prices of machines, and increase the commission on repairs.

3. That you establish and maintain a uniform minimum retail price for each territory.
4. That you omit from the exclusive clause all mention of Stackers, Rakers and Tedders.
5. That you have your district agent or some one whom he may select to act in his absence, pass on all orders submitted to him by the local agent for the purpose of approving such as he may deem satisfactory, and that all notes taken in accordance with such approved orders shall be accepted in settlement, and that such acceptance shall be final.
6. That the guarantee against defects in workmanship and material be extended to cover wood and canvas parts.

The International Company's Reply.

The replies of the International Harvester Company in their numerical order are as follows:

1. The International Harvester Company is heartily in accord with this proposition. It has taken favorable action on 75 per cent. of the reports furnished by the National Federation a year ago, and has on its own motion acted similarly on many other cases not reported.
2. It is inexpedient to discontinue the use of canvassers generally at this time, and present conditions do not warrant any reduction in the price to dealers for 1905, but the management realizes that in some sections the dealer's margins are not sufficient, and it is the policy of the company when conditions will justify to so adjust prices as to enable the local agent to make a better profit.
3. The company will insist upon strict compliance with clause 5 of the agent's contract.
4. It is agreed that the exclusive clause shall not apply on Stackers, Sweep Rakes and Tedders, and on Hay Rakes only when consigned, also that the fact of having a commission contract does not obligate a dealer to handle other goods that are included in the International sale contract, which for 1905 includes Stackers, Rakes, Tedders, Twine, Hay Presses and Gasoline Engines.
5. The company agrees to instruct its blockmen to examine orders submitted by local agents as far as practicable and to approve such as conform to contract requirements. Notes properly taken on such orders will be accepted, the necessary changes in the contract to be provided for by memorandum from general agent to local agent and attached to the contract.
6. All defective canvas and wood parts will be replaced in the same manner provided for replacing other defective parts.

THE CATALOGUE HOUSE QUESTION.

LETTER FROM WELLS & NELLEGAR COMPANY.

To the Editor: Our attention has lately been drawn to some correspondence recently published by the National Retail Hardware Dealers' Association's Bulletin for October, where an attempt was made to show that the Hardware house of Wells & Nellegar Company was not serving the interests of the retail Hardware trade of the country, and that they were making a practice of selling catalogue houses and other competitors of the retail Hardware trade.

The facts are that in August of this year we were honored by a visit from a committee composed of some of our distinguished Hardware competitors in the West, who made a request that we announce then and there that we would not sell goods to catalogue houses, and that we should print on our stationery, &c., that we were not selling catalogue houses, &c. We informed the committee that we were not then and never had been in favor of selling any competitor of the retail Hardware merchant, but thought that a discussion of the matter through the trade papers and printing a notice on our stationery would advertise the catalogue houses more than anything else, and would do more harm than good. Throughout the interview, however, we thought we could detect an implied threat that if we would not accede to the requests made we would regret it. Because of the feeling that we were to be driven to do a thing in a certain way because some of our large competitors thought we should do it in that way, and because they wanted us to do it, and not because it was right, we told them we preferred not to discuss the matter with them.

Ever since the occurrence referred to all sorts of unjust rumors have been spread about our company and the members of our company, not only with respect to the business that they say our company is doing with

catalogue houses, but traveling salesmen for competitive houses have spread the most unfounded and unqualifiedly false reports to the effect that Wells & Nellegar Company could not continue to do business in Chicago, that their competitors had bought them out and that the price was agreed upon and the transfer was to be made at a certain date, giving the date and even the terms, &c. Other reports were to the effect that Mr. Wells' and Mr. Nellegar's health had failed, that they were invalids, &c.

Now all the above reports are false. We are in such good health and good spirits that we do not even bear our competitors any ill will and we have so good a trade that we can afford to laugh at the efforts that have been made to belittle us in the eyes of our customers. We have never offered a dollar's worth of our stock for sale to a competitor. We have never offered our business for sale, but have associated with us at this time additional stockholders and additional capital, and will enlarge our business, issue a new catalogue, send out additional salesmen and trust that our customers will not listen to the unjust insinuations of our competitors, who seek to boycott us and ruin our business because we are growing too rapidly.

Now, as to the catalogue houses, we are refusing to sell them and will not sell them, and we decline to sell them because it is to the interest of the retail trade, and not because of some theory of a competitor. Two weeks ago a mercantile company of Kansas City came to us with an order for a large new stock of Shelf Hardware. They offered us cash for the goods. We learned they issued a catalogue and declined the order. The bill promised to amount to ten times what we could sell to the average retailer in a year, but we refused it and would have refused it had it been offered to us in August or September, and during those months we refused the business from a large number of other catalogue houses.

We believe that some of the large jobbers who seek prominence at this time in the war they have declared against catalogue houses are the very ones most to blame for the large trade in Hardware the catalogue houses enjoy. One of these same large jobbers informed us that he had sold in one year as much as \$100,000 worth of Hardware to one catalogue house in Illinois alone. At that time the catalogue houses were willing to purchase from jobbers, but we are informed that at present the buyers for catalogue houses are instructed not to purchase from jobbers, but to turn all their Hardware business into the hands of manufacturers, and this explains to our mind the change of heart of certain jobbers, who cannot secure enough business now to make it pay, and are commencing to cry "stop thief."

If it is wrong for them now, were they doing the right thing then? After fostering and building up the Hardware business of catalogue houses for years and years they now try to divert attention from themselves by endeavoring to draw unjust criticism to others.

Our contention is that the practice was wrong then, the damage was done then, and the practice ought not to have been followed then or now. Our aim is and has been to seek as an outlet for our goods the legitimate Hardware trade; to give them good goods at low prices, and to try to appreciate the large business that has come to us, and all we ask is a fair show.

WELLS & NELLEGAR COMPANY.

CHICAGO, November 19, 1904.

WILLIAM H. CUMMINGS, Plantsville, Conn., treasurer of the Clark Bros. Bolt Company, died in that town, November 17, after a brief illness, death coming very suddenly and unexpectedly. Mr. Cummings was born in Plantsville, April 9, 1849, and passed all his life in the town. His business career was identified with the Clark Company from his boyhood. He entered the employ of W. J. Clark & Co. in 1866, and in 1871 was taken into the firm, the name being changed to Clark Bros. & Co. When the business was incorporated in 1902 he was made the treasurer, and continued his duties as general manager. Mr. Clark was well known as a musician, and was organist of the Plantsville Congregational Church for more than 25 years. He leaves a widow and four children.

CARE OF CATALOGUES.

THE accompanying illustration shows the cabinet for catalogues and price-lists which is used by the Seminole Hardware Company, Wewoka, I. T. The printed matter contained in the cabinet is kept right up to date and filed in such a manner that any item a customer may call for which is not in stock can be quickly found. By being able to do this and name a price the company is very frequently able to make sales that would otherwise go to some catalogue house.

As shown in the illustration, bound volumes are stood on the top of the cabinet. In the section of small drawers, which are alphabetically arranged, are kept small catalogues of nearly all kinds, also arranged alphabetically according to the names of the manufacturers. The drawers are also numbered, to which a classified



Catalogue Cabinet.

index applies. The following list is taken from this topical index of small drawers and gives a few of the items covered by the drawers:

Drawer No.	Drawer No.
Blacksmiths' Supplies..... 3	Mills, Wind..... 4
Buggy Poles and Shafts... 6	Mills, Coffee..... 1
Carpenters' Tools..... 7-8	Office Stationery..... 1-2-8
Castors 6-3	Paints and Supplies..... 5-6-7
Cane Mills..... 7-2	Roofing 3-4-7
Cornice, Conductors, &c. 1-3-5-8	Stove Repairs..... 1
Door Hangers..... 8	Shearing Machines..... 2
Drill Bits..... 7	Store Fronts and Steel
Enameled Ware..... 2	Roofing 2-5-8
Garden Plows..... 7	Spring Butts..... 2
Glassware 3-5-6	Steel Ceiling..... 8-5-4
Gasoline Engines..... 3	Screw Drivers..... 3
Hardware Specialties.... 1-2-7	Woven Wire and Iron Goods,
Lawn Mowers..... 6-7	1-2-5-6

If catalogues of Hardware Specialties are wanted, by reference to the index they are found to be in drawers 1-2-7. Cornice, Conductors, &c., in the same manner, are found in drawers 1-3-5-8, and so on through the long list. The index is found of great assistance in finding special catalogues that are seldom used and which are too numerous to remember their location.

Special drawers are devoted to catalogues of Furniture, Stoves, Coffins, Sporting Goods, Wagons and other lines. Net price-lists applying to the different catalogues are kept in an ordinary letter file.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses and are referred to the manufacturers:

FROM BOLES & DOWNING, Drakesville, Iowa, successors to A. H. Boles in the Hardware, Implement and Vehicle business.

FROM W. A. ZOLLMAN, Pulaski, Iowa, who has recently purchased the Hardware, Stove, Implement, Paint and Sporting Goods business formerly conducted by H. M. Rees.

FROM FULLER-COOK HARDWARE COMPANY, Houston, Texas, successor to J. S. Dunlay Hardware Company, wholesale and retail Hardware, Stoves, Implements, &c. The new company will make a specialty of jobbing Sporting Goods.

FROM S. G. SLACK & Co., Tifton, Ga., whose stock and building were recently destroyed by fire. They are intending to resume business at once and will value catalogues and price-lists pertaining to Hardware, Stoves, Tinware, Mill Supplies, Farm Implements, Buggies, Wagons, Paints, &c.

FROM WOODRUFF HARDWARE COMPANY, Knoxville, Tenn., whose extensive jobbing establishment was destroyed by fire on the 12th inst. The company was well covered with insurance and intends to rebuild and resume business as speedily as possible. Owing to the difficulty of securing a suitable location it will probably be 60 days before the company is fully equipped to continue business.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made besides the brief reference to the catalogue or price-list in this column.

GRANITE STATE MOWING MACHINE COMPANY, successor to Newhall & Stebbins, Hinsdale, N. H.: Illustrated pamphlet devoted to Rover and Mystic Ball Bearing Lawn Mowers.

STEPHEN McCLELLAN, 1179 Herkimer street, Brooklyn, N. Y.: Illustrated catalogue of Universal Iron and Wood Drilling Patented Tools.

DUPLEX FOLDING PAIL COMPANY, 114 East Fourteenth street, New York: Duplex Folding Pails, including Automobile, Handy, Camp, Horse and Two-Minute Pails.

THE HOLLINGER FENCE COMPANY, Greenville, Ohio: Price-list adopted March 1, 1904, of Spring Cotters and Flat Spring Keys.

ISAAC C. IMBODEN, Lebanon, Pa.: Circulars relating to Chucks and Bushings and to Combined Harrow and Roller.

THE MALIN & Co., Cleveland, Ohio: Catalogue devoted to Wire on Spools, Wire Belt Lacing, Cast Steel Music Wire, Solid Wire Clothes Lines, Stove Pipe Wire in 50-foot coils, &c.

THE WALLACE BARNES COMPANY, Bristol, Conn., manufacturer of small Springs of every description; dealer in Wire and Cold Rolled Steel. The company makes to order all Springs, except Flat Coil Springs, of which it generally has a stock.

H. R. WYKERT, 701 South Sixteenth street, Omaha, Neb.: Circular describing the Soldier's Friend Camp or Cot Bed.

THE FENN MFG. COMPANY, Charlotte, Mich.: Circulars relating to Forbe's Patent Clamp Snaths and Baseball Bats.

M. LANZ & Sons, Pittsburgh, Pa.: Illustrated price-lists relating to Forged Steel Joist Hangers, Timber Stir-

rup Hangers, Steel Wall Boxes, Timber Hangers and Post Caps.

THE A. J. PHILLIPS COMPANY, Fenton, Mich.: Catalogue of 1905 Screen Doors, Window Screens and Window Screen Frames. Attention is directed to the company's new Air Line Adjustable Window Screen.

TRADE ITEMS.

THE R. D. CONE COMPANY, wholesale Hardware, Winona, Minn., has consolidated its business with the Hackett, Walthers, Gates Hardware Company of St. Paul, and the stock is being transferred from Winona to St. Paul.

At the annual election of officers of the Kansas City Implement, Vehicle and Hardware Club, held at the Coates House, Kansas City, Mo., November 14, the following named officials were chosen for the ensuing year: President, H. B. Topping; first vice-president, H. S. Rhodes; second vice-president, J. R. Van Cleve; secretary, J. E. Baird; treasurer, A. C. Trumbull. Mr. Baird and Mr. Trumbull were re-elected for their sixth term of office. J. M. Patterson, the retiring president, presided at the meeting. The club will hold a social meeting at the Coates House December 12.

A NOVEL and effective method of advertising the Corbin ball bearing cylinder Lock has been adopted by W. C. Stephens, Chicago manager for P. & F. Corbin, New Britain, Conn. Mr. Stephens mounted a large magnifying glass on a pedestal in his store window at such an angle that passersby could look through the glass at the Lock with its mechanism exposed and cylinder connected, and also a ball bearing cylinder cut open, showing a full sectional view with key inserted. Underneath the glass also are shown all the parts of the Cylinder Lock separately. The glass magnifies six or eight diameters and there is never a moment in the day in which a number of persons are not lined up front of the window to look through the glass.

THE manufacturers of Machine Brushes complain of a great scarcity of the Okatka bristle, the very long and high quality Russian product, which always commands a high price, but which now can hardly be obtained at any price because of the demands of the European nations, especially England, which require the bristles for gun swabs for heavy ordnance. The Okatka bristles are peculiarly well suited for this purpose.

JUDGE BURNHAM of the Seventeenth Judicial District of Iowa has ruled that the peddlers' license law of that State, which was passed at the instance of the retail merchants about a year ago, cannot be applied to the case of the box car merchant who sells goods in Iowa for a supply house in Chicago or other point outside of the State, as the prohibition of such merchandising would be in violation of the Interstate Commerce Law.

THE *Farm Implement News*, Chicago, prints reports from about 100 Implement dealers throughout the West on the condition of business in the season just closed and on the outlook for the coming season. Except in limited sections of the country, where crops were destroyed by hail, wind or by local misfortunes, these reports are optimistic, indicating that this year's business in Implements has been larger than usual and that collections are unusually good, a larger percentage of farmers than ever before in the history of the trade paying cash for their purchases. The outlook for the coming season is bright and there is every prospect that dealers will contract for large quantities of Implements.

SEVERAL changes have been made in the management of the Annual Wind Clock Company, Middletown, Conn. Harry E. Powell, Newark, N. J., succeeds Herbert S. Johnson as secretary, and Joseph Merriam fills the vacancy in the Board of Directors caused by the resignation of H. H. Francis.

Charles A. Ireland has bought Robert O. Toan's interest in the Hardware and Stove firm of Toan & Ireland, Ionia, Mich., and will continue the business under his own name.

SIMMONS HARDWARE COMPANY IN THE NEW YORK MARKET.

IT is apparent that the Simmons Hardware Company of St. Louis is to have a more close and intimate relation with the trade in the East than has heretofore been the case. For some time this company has been cultivating business in the Atlantic States, with such a measure of success as to make it desirable for it to have convenient to its customers in this vicinity a nearer source of supply for some of its goods, particularly in the line of its special trade-mark articles. In the furtherance of this object, the company has transferred its Philadelphia office and salesroom to 298 Broadway, New York, where it will carry a stock principally, if not exclusively, of its trade-mark lines, with a view to facilitating the furnishing of the goods to the trade in Eastern territory. The company is arranging also for a close alliance with Neal & Brinker, 18 Warren street, with a view to making it to their interest to make the sale of these trade-mark specialties an important feature of their business, drawing on the company's supply in this city. In this way it is hoped that they may find it advantageous to push the goods and introduce them more extensively to the trade in the broadening territory which they cover. In the negotiations connected with these plans both Messrs. Neal and Brinker have visited St. Louis, and E. C. Simmons and W. D. Simmons, president of the Simmons Hardware Company, have been spending several days in New York.

The Simmons Hardware Company has been led to take this action by which a supply of its special goods can be obtained here, while at the same time their introduction to many merchants who are not now familiar with them will, it is expected, be accomplished through the enterprising house who will make a feature of their sale, because of the importance of these goods and the desirability of having them within easy reach of their customers in this part of the country. The company will also give more direct effort than heretofore to the cultivation of the trade in the East and to this end will probably in the near future be sending an increased force of travelers into the field. In this extension of their trade relations they will obviously be aided by the fact of having a sales and sample room where stock will be carried and from which prompt shipments can be made, thus avoiding the delay involved in transmitting the orders to and shipping the goods from St. Louis.

In connection with these matters which have been determined there are many unfounded rumors current among the trade concerning, for example, the erection of a warehouse here by Simmons Hardware Company for the carrying of the general stock of Hardware, increased attention to the export trade, the opening of a large retail establishment, &c. What the developments of the future may be remains to be seen, and will probably depend upon the manner in which the Eastern trade avail themselves of the opportunities thus presented. It would on many accounts be a matter for general congratulation if the great St. Louis house should see its way clear to establishing in this city a branch carrying a full stock of goods, and should enter with its characteristic energy and skill on the cultivation of the trade in all its lines. Possibly from the beginning now made there may be developments in this direction. Such a house might do much to recover for New York its former position as a distributing center, and this would probably be advantageous to all Hardware interests here. Whatever course things may take, we bespeak for the Simmons Hardware Company and the vigorous house with which it is about entering into alliance the best wishes of the trade in this new departure.

The Rose-Lyon Hardware Company, Little Rock, Ark., has succeeded W. W. Dickinson Hardware Company in the wholesale and retail business. The business has just been moved into a new six-story building with the most modern facilities for the accommodation and distribution of goods. At the same time the capital has been materially increased.

THE ATLANTIC CITY CONVENTIONS

AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION.

NATIONAL HARDWARE ASSOCIATION.

THE conventions held last week at Atlantic City undoubtedly rank among the most successful of such gatherings. Admirable arrangements had been made in the way of determining upon an attractive programme, the attendance was large and representative, matters of importance engrossed the attention of the delegates, and the entertainment features furnished recreation and gave opportunity for social intercourse. The weather, too, was all that could be desired, and the hopeful feeling that characterizes the trade contributed to the spirit of confidence and cheerfulness. The discussions were of special interest and are fully represented in the reports which follow. Some of the papers, however, have been necessarily deferred to another issue on account of the pressure on our space.

The Catalogue House Question.

During the conventions the policy to be pursued in regard to catalogue houses was prominently discussed by both the jobbers and manufacturers, as its various phases were canvassed either in convention or informally in conversation. The subject came up formally before the National Hardware Association in connection with the report of the Joint Committee, of which S. Norvell of the Norvell-Shapleigh Hardware Company is chairman. His report narrated in some detail the work of his committee, and touched upon various aspects of the question in connection with the conferences between the committee and the large number of manufacturers who appeared before it. Of the work of the committee, with the general features of which we have already advised the trade, the National Hardware Association expressed its approval and adopted the report with a few relatively unimportant changes. It was not, however, deemed advisable to have the report made public. All the members of the Joint Committee were present with the exception of Col. R. M. Dudley, who was, much to the regret of all, detained by illness in his family. As was naturally to be expected, there was a good deal of difference of opinion among the manufacturers and jobbers as to the lines along which the effort to diminish the evils of catalogue house competition should be directed, and some curiosity was expressed as to whether the effort to shut off the supply of goods would be successful.

Jobbers' Special Brands.

Probably the most interesting session of the conventions was that on Thursday afternoon, when the subject of special brands was under discussion. It was the joint meeting of the two associations, the jobbers attending in a body and meeting with the manufacturers in the St. Charles Hotel. In view of the practical importance of this question and the attention which it is commanding from the trade we report with special fullness the addresses which were made on the subject, representing as they do the views of both jobbers and manufacturers.

After the discussion on special brands between the manufacturers and jobbers, a joint committee was appointed to consider the matter with a view to recommending such action as may be advisable in view of the interests, more or less conflicting, of the manufacturers and jobbers in this matter.

As indicating the position of some at least of the manufacturers, the following resolutions offered by W. M. Taussig, chairman of the Cutlery section of the associa-

tion, will be of interest. They were in regular course referred to the Resolutions Committee, but in view of the discussion and the appointment of the joint committee, they were not formally acted upon. They are, however, significant as indicating one of the methods suggested for the protection of manufacturers against the evils and inconvenience which they at present suffer from, the manner in which special brands are manufactured and sold, and the place they occupy in the market:

Whereas, The use of special brands by jobbers of Hardware and Cutlery has reached proportions that seriously menace the interests of the manufacturers who market all or the greater portion of their product through these channels, and is gradually causing the manufacturers to lose their identity with the retailers and consumers; and

Whereas, It is vital to the interests of the manufacturers that the constantly increasing tendency toward the use of special brands be checked;

Resolved: 1. That the attention of the National Hardware Association be called to this state of affairs, with the request that they take cognizance of it and assist the manufacturers in remedying the evil.

2. That each group of manufacturers in this association be recommended to consider carefully the question of restricting the use of special brands by one or all of the following methods:

First.—By making an extra charge, either by percentage on the selling prices or a specific amount per dozen.

Second.—By securing an assignment to the manufacturer of all rights in such special brands.

Third.—By insisting where special brands are put on the manufacturer's first quality goods that the name of the manufacturer be placed on the goods in addition to the special brand.

Fourth.—That without exception all extra expense of labels, stamps, etching plates, stencils, &c., be charged to those ordering goods under special brand.

Minor Officials.

J. H. Van Newkirk of New York occupied his usual place as journal secretary of the National Hardware Association. Thomas A. Fernley very efficiently filled the somewhat troublesome post of railroad secretary and in many ways was useful to the members, while George Fernley served them as page. In the Manufacturers' Association C. M. King made an energetic and efficient marshal-at-arms.

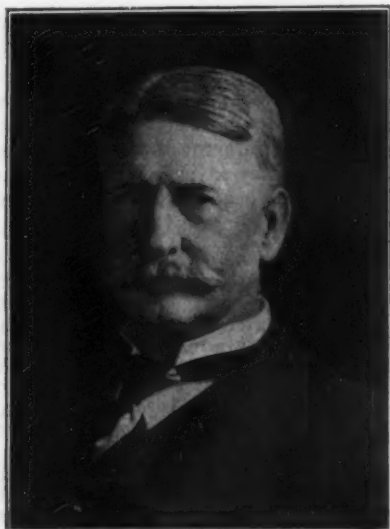
Honorary Members of the American Hardware Manufacturers' Association.

With a view to expressing their appreciation of men who have achieved a conspicuous position in the industrial world, although not connected with the association, provision was made, in accordance with the recommendation of the Executive Committee, for honorary membership. Candidates for this honor must receive the unanimous indorsement of the Executive Committee and be elected by the unanimous voice of the association. Thus safeguarded against impulsive or unwise action, election to honorary membership is a notable distinction, and was fittingly first conferred upon George H. Sargent, one of the greatest of our manufacturers and widely known and honored. As occupying this high position in the trade Mr. Sargent was one of those at the reception on Wednesday whom the guests and delegates had the pleasure of greeting as the official hosts of the evening. A second honorary member was chosen in the person of Irby Bennett, who has contributed for many years in a marked degree to the success of the great gatherings of the trade and has also been actively identified with manufacturing interests.

The resolution regarding honorary membership was as follows:

Whereas, We find among the Hardware trade representative men who have been prominently identified with the upbuilding of industrial monuments, which have become well known throughout the world, but who are not members of this association, be it therefore

Resolved, That an honorary membership be created to which any person especially noted for achievement in the line of hardware shall be eligible. Nominations for honorary membership must first be submitted to the Executive Committee and receive unanimous approval.



J. C. BIRGE.

A unanimous vote of the members present at any regular meeting of the association shall constitute an election. Honorary members shall be entitled to all the privileges of active members, except voting for the election of officers, but they shall not be elected to any office in the association.

Attendance.

The attendance at both conventions was large and thoroughly representative. There was a marked increase in the number of manufacturers who were present, and the efficient attention which is being given by their association to matters of interest to the membership is evidently to be credited in good measure with the marked growth in interest in the work of the association. An inspection of the lists given on another page of those who were present at one or other of the conventions will show how thoroughly the trade was represented, as nearly all the great houses identified with the production or the distribution of Hardware were in attendance.

Representatives of the National Retail Hardware Dealers' Association.

All the representatives of the National Retail Hardware Dealers' Association who are members of the Joint Committee on the catalogue house question were present at the convention and contributed much to the informal discussion of the catalogue house question, in which they are especially interested. Their relations with both the jobbers and manufacturers were most cordial, and the addresses made by Messrs. Bogardus, Corey and Bush were listened to with much appreciation. The views expressed and the clearness and ability with which they were presented impressed the convention. An interesting development in connection with the matter of representation of the various interests at the important trade gatherings was the invitation extended by the representatives of the Retail Association to the manufacturers to be present at their meeting at St. Paul in March next. The invitation was promptly accepted. In this way there is reason to expect that much will be accomplished in the matter of securing close and harmonious relations between the various divisions of the trade.

Next Year's Meeting.

A committee was appointed by the Manufacturers' Association to confer with a like committee of the job-

bers in regard to the place where the conventions should meet next November. The three principal cities suggested were St. Louis, Atlantic City and Washington. After a careful canvass of the whole subject Washington was selected, and that city will accordingly be the place where both the National Hardware Association and the American Hardware Manufacturers' Association will hold their conventions in 1905. The trade will remember that the manufacturers will meet in connection with the Southern Hardware Jobbers' Association in June, 1905, at Virginia Hot Springs.

Officers of the American Hardware Manufacturers' Association.

In accordance with the recommendation of the Nominating Committee, the following officers were unanimously chosen for the ensuing year:

PRESIDENT, Julius C. Birge, St. Louis Shovel Company, St. Louis.

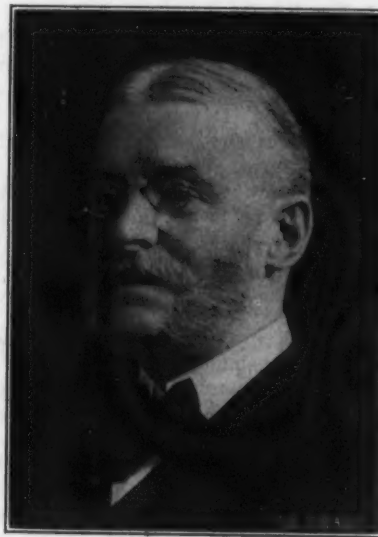
VICE-PRESIDENTS, Geo. W. Corbin, Corbin Cabinet Lock Company, New Britain; Henry B. Lupton, Oliver Iron & Steel Company, Pittsburgh; Chas. W. Asbury, Enterprise Mfg. Company, Philadelphia.

EXECUTIVE COMMITTEE: Wm. M. Taussig, Samuel Disston, Wm. M. Hays and John E. Harbster.

The administration of President Birge during the past year met with the most hearty appreciation of the association, and there was only one opinion as to the desirability of his re-election, so that notwithstanding the pressure of other interests and his wish to be relieved from these official cares, which with the thought and attention given to the association involve not a little labor, he consented to accept the office for another term. Some changes made in other offices were necessitated by the constitutional provision which forbids the re-election of a person to the same office for more than two terms.

Officers of the National Hardware Association.

On the opening day of the convention the following Nominating Committee was appointed: Geo. T. McIntosh, Cleveland, Ohio; J. H. Boucher, Rochester, N. Y.; Col. B. F. Eshelman, New Orleans; J. A. Warner, St. Joseph, Mo.; J. S. Breck, Boston, Mass.; H. C. Marshall, Duluth, Minn., and Geo. L. Irvin, Baltimore, Md.



SAMUEL A. BIGELOW.

Their report was presented on Friday and ratified by the election without dissenting voice of the following board of officers:

PRESIDENT, Samuel A. Bigelow, Bigelow & Dowse Company, Boston.

FIRST VICE-PRESIDENT, John C. Koch, John Pritzlaff Hardware Company, Milwaukee.

SECOND VICE-PRESIDENT, Brace Hayden, Dunham, Carri-gan & Hayden Company, San Francisco.

EXECUTIVE COMMITTEE: Col. R. M. Dudley, Gray & Dudley Hardware Company, Nashville; W. S. Wright, Wright & Wilhelmy Company, Omaha; W. D. Taylor, Geo. Worthington Company, Cleveland.

It will thus be seen that President Bigelow and the vice-presidents were re-elected, a mark of the approval of the association of their admirable administration. Of the Executive Committee Col. R. M. Dudley and W. S. Wright were chosen for the full term of three years, and W. D. Taylor to fill out the unexpired term of John Freeman.

Entertainment.

The entertainment furnished to the delegates and guests contributed much to the social character and enjoyment of the gathering. The three principal events—



F. D. MITCHELL.

the reception by the manufacturers Wednesday evening, the euchre party on Thursday evening and the banquet on Friday evening—notwithstanding the difficulty attending their carrying out on account of the number of participants, passed off most successfully and reflected credit on those in charge of them.

Reception and Musicale.

On Wednesday evening a reception and musicale were given at the St. Charles Hotel by the American Hardware Manufacturers' Association to the members of the National Hardware Association and the visitors and guests in attendance at the convention. A great concourse availed themselves of this opportunity to meet in a social manner and were duly presented to the following prominent gentlemen, who formally received the guests: Fayette R. Plumb, first president of the American Hardware Manufacturers' Association; Julius C. Birge, president of the American Hardware Manufacturers' Association; William W. Supplee, first president of the National Hardware Association; Samuel A. Bigelow, president of the National Hardware Association, and George H. Sargent, honorary member of the American Hardware Manufacturers' Association. An attractive musical programme was furnished by the Ringgold Orchestra, a quartette and soloists. After the musicale refreshments were served in the dining room, and the social conference continued in a less formal manner in the lobbies and parlors of the hotel. The occasion was greatly enjoyed, and the manufacturers received many compliments on the taste and judgment displayed in all the appointments and on the unqualified success and pleasure of the evening.

CHICAGO SPECIAL.

The Chicago special left Chicago via Lake Shore-Lehigh Valley Route on Monday, November 14, at 1 p.m. There were nearly one hundred passengers on board when the special pulled out, and as nearly all the party had been on previous specials, practically no introductions were necessary, and an enjoyable trip was assured. A banquet was served on the train from 5 to 9 o'clock, an elaborate menu of ten courses having been arranged. Souvenir candy boxes consisting of miniature Gladstone

traveling bags were presented to the ladies. These bags bore *fac-similes* of hotel labels, covering the points visited by former delegations, as follows: Jefferson Hotel, Richmond, Va.; Hollenden Hotel, Cleveland, Ohio; St. Charles Hotel, New Orleans, La.; Rudolf Hotel, Atlantic City, N. J. These souvenirs were much admired and greatly appreciated by those receiving them. The train was three hours late reaching Atlantic City, which delay was occasioned by a freight wreck on the Lehigh Valley. The delay was regrettable, as it prevented an automobile ride in Philadelphia, which was one of the features planned by the committee. The following were passengers on the train: Mr. and Mrs. Geo. Tritch, Mr. and Mrs. Geo. E. Garland, Mr. and Mrs. A. C. McKinnie, Mr. and Mrs. H. A. Taylor, Mr. and Mrs. Geo. W. Trout, Mr. and Mrs. C. D. Clark, Mr. and Mrs. H. J. Lee, Mr. and Mrs. C. A. Knapp, Mr. and Mrs. H. L. Spencer, Mr. and Mrs. A. W. Wagner, Mr. and Mrs. E. A. Hoffman, Mr. and Mrs. W. M. Glass, Mr. and Mrs. C. E. Otto, Mr. and Mrs. J. C. Kroner, Mr. and Mrs. W. W. Birge, Mr. and Mrs. E. M. Kemp, Mr. and Mrs. Fred. Fee, Miss Kemp, Miss Adams, F. W. Hurty, H. L. Sanford, T. G. Walther, R. Tenk, Courtlandt Van Camp, S. G. Van Camp, W. O. McQuarrie, W. G. Miller, Geo. G. Bogue, F. R. Peck, Ed. Beall, J. B. Silliman, J. A. Warner, V. E. Hamilton, F. H. Hill, W. S. Coleman, L. E. Dietz, Thos. Usher, W. H. Foegge, Geo. L. Vinze, Geo. H. Bushnell, W. J. Gold, H. B. Prentice, H. M. Avery, F. D. Ford, F. E. Cutler, F. M. Pease, W. C. Whitcher, P. W. Holmes, F. B. Platt, J. F. Richards, Geo. A. Mason, Don McMillan, F. G. Fletcher, F. E. Bronson, C. E. Walton, W. H. Bennett, H. H. Roberts.

J. C. BIRGE'S PRESIDENTIAL ADDRESS.

Without reciting the many questions which were subjects of consideration at your convention held in June last, it seems proper to refer to one matter which since that meeting has become the theme of wide discussion. An able and thoughtful communication, published in *The Iron Age* over the signature of a prominent St. Louis merchant, on the subject of catalogue house competition; also personal communications from two other leading jobbers, each bearing chiefly upon the same subject, led to the belief that this topic was likely in time to become of some interest to the trade.

THE ATLANTA MEETING.

Without having received any suggestions from any representative either of the retailers' or jobbers' association, your Executive Committee invited E. C. Simmons and W. R. Belknap, the gentlemen already referred to, to make the trip to Atlanta to address you. They accepted your invitation and presented the subject of catalogue house competition, to which you devoted the morning session. In the afternoon, through the courtesy of the Southern Hardware Jobbers, you having adjourned for the purpose, you were permitted to listen to another able and thorough presentation of the same subject by S. Norvell, who was the guest of the Southern Jobbers' Association. Although at that time neither of these speakers had been identified with either of the Hardware associations, yet it would be difficult to secure a more able and exhaustive presentation of this new subject, or by merchants who are more representative by reason of their recognized prominence and extensive trade.

The opportunity to listen to these gentlemen seemed to be highly appreciated, and their words met with cordial response in a generally expressed desire, as far as possible, to work along any reasonable lines in harmony with the wishes of the merchants, and this largely because of the obvious fact that the manufacturers are as deeply interested in the prosperity of the trade at large, the retailers included, as the jobbers can possibly be in the success of their customers.

The discussion at Atlanta was followed by the organization of a Joint Committee on Catalogue House Competition, embracing representatives from the two jobbers' associations and the National Retail Association

MANUFACTURERS AND THE CATALOGUE HOUSE QUESTION.

The past summer has given evidence of increasing interest in the subject. The first official communication from the committee which has been given to the public we believe to be a recent report to the jobbers indicating that with it was inclosed a digest of catalogue house prices. Although the report does not professedly concern us as manufacturers, nevertheless as it was published in the leading trade journals last month over the signature of the secretary's committee, and it being in

part an open letter, setting forth with much particularity the attitude and motives of manufacturers in relation to the question, may justify us in bringing the history of the subject up to date. The communication makes no reference to this association or specifically to any of its members, but it is reasonable to suppose that some of our



T. JAMES FERNLEY.

members are in the focus of its searchlight. The following quotation taken from the report doubtless expressed the honest opinion of its writer concerning the psychological condition of the "certain manufacturers": "It is quite evident from our experience with certain manufacturers that they are slow in admitting our claims, not because they do not see the justice of our cause, not because they care particularly for the business of the catalogue houses, but more because it ruffles their pride to be called to task in this matter."

Only since our last meeting, so far as we know, has catalogue house trade in the mercantile code been classed as a misdemeanor; even yet the reform has spread chiefly through Hardware lines. It is therefore not strange if, as is implied by the report, some especially captious manufacturer was "called to task in the matter," having been upbraided for the error of selling catalogue houses, that such manufacturer's "pride might have been ruffled." This result would be quite possible if the censure were administered by some converted jobber, who but yesterday had come to see the error of his ways and then discontinued the practice. We must remember that the disclosure of this evil has been so sudden that even now some manufacturers who have walked in darkness may still have failed to see the light. Reformations rarely come like tidal waves, sweeping everything before them.

Another clause in the report is as follows: "Why should the associated jobbers and retailers be criticised for having a joint committee to look out for our mutual interests?" This interrogatory is propounded with such apparent seriousness that it leads to the belief that its writer is really in earnest. Having taken up this subject voluntarily at our last meeting, giving to it the first general hearing which the subject ever received, listening seriously and attentively to the extended addresses upon it with hardly a word of dissent, the merchants might safely have regarded the attitude of the manufacturers as being as favorable as could reasonably be expected upon an absolutely new proposition, and especially so when they are advised that a number of our influential members who have for many years dealt very largely with catalogue houses have withdrawn from that trade with a view to co-operate with the merchants.

The plan of forming the joint committee, and especially the character of its *personnel*, has been the subject of individual commendation by our Executive Board and members generally, as far as heard from.

If the committee really intend to convey to the trade at large their opinion that you have not moved with due celerity in this matter, you may find yourselves in the same frame of mind as was the young man, an heir to his father's estate and who for many years had been defending his rights against a claimant. One day, in a moment of disappointment, he exclaimed: "This thing is giving me so much trouble that I am almost sorry that dad died!"

SOURCE OF PROFIT.

The report of the Joint Committee makes mention of the large fortunes which manufacturers have made. To quote literally, they state that through our patent laws "on such articles" we are "absolutely masters of the situation in regard to profits." That the tariff laws "have practically given you control of the markets of the United States," and that selling arrangements with a large number of manufacturers "have practically eliminated competition." This flattering declaration may come as a revelation to many of you who may not have realized the power supposed to be at your command.

It is hardly possible that these statements are made with the view to boom the stock in manufacturing concerns or to favorably influence your standing with commercial agencies, but it does show that the committee indorses the familiar arguments to the effect that general prosperity exists as it did not exist a few years ago, when for a long period many great factories lay with smokeless chimneys and the fortunes of owners melted away in spite of tariff and patent laws.

THE TARIFF.

This tariff question in America, like the contents of a delicate stomach on shipboard, is likely to come up at any moment. It may not be clear to you who are now struggling with intense local competition that a tariff which compels you to pay from three to five times the price for a day's labor of eight hours that is being paid for 10 to 12 hours' service in other countries, thereby enabling the American artisan to spend a much greater amount of money with the merchants than he otherwise could do, is not as great a benefit to such merchants as it is to the manufacturer who pays the increased wages. Eighty per cent. of the cost of some Hardware is represented by labor at factory, mine or in transit.

If as the result of free trade or a failure of the manufacturer to meet foreign competition European Hardware should supply our markets and the workmen who made those goods should spend their money in Europe, as they certainly would do, would our merchants profit more largely than if American workmen, receiving good wages, should buy all their goods here as they now do?

Would the catalogue houses under those conditions experience more difficulty in obtaining supplies than they did when the jobbers sold them freely or than they now do from American manufacturers, the greater number of whom have manifested considerable bias in favor of our own jobbing trade?

It is safe to assume that the statements in the report concerning your large profits and the alleged cause of



GEO. P. HART.

those profits is not so much to disclaim the advantage which the merchants certainly derive from well paid customers, as to convince the very many who will read the report that you as manufacturers are reaping very large profits, and are therefore well able to confine your business to such channels as are indicated.

PATENTS.

Over the subject of patents, to which they also refer, there seems to be a glamour like that which is character-

istic of many far away mining schemes. The writer of the report has possibly been more fortunate in his experience with patents than have some other business men. There are manufacturers who have acted on the general advice of a certain New England father who had sent his son to New Orleans to operate in cotton. Not receiving any reports from the young man for a considerable time he telegraphed him to learn how the business was progressing. The son wired the reply, "I am about even on cotton, but am \$9.50 ahead on draw poker."

Personally, I have no knowledge of the business last



WM. M. TAUSSIG.

referred to, although it is a Hardware term, but there is nothing to prevent any business man from dropping his regular calling to stick to patents, if he believes there is profit in them.

Some inventors and patent right men have secured profits from patents, thousands have lost what they once possessed. No one will begrudge the success of an inventor, be he a day laborer, merchant or farmer, who uses his brain to turn the forces of nature to the benefit of mankind.

It is said that in science the man who discovered the telescope and first saw the heavens was repaid by imprisonment, the man who invented the microscope and first saw earth died of starvation.

Manufacturers of staple Hardware are seldom beneficiaries in patent articles—American Hardware manufacturers who do control them use them with little reward, except to stimulate a demand for their goods. They will use the best machinery, whether patented or otherwise, and the best methods within their reach, and if some one's patent is desirable to improve their products they are likely to purchase it.

It is safe to assert that when the difference in the prices paid for labor is considered, they make and sell their goods in America as cheaply as similar goods are sold in Europe.

They have also a much higher regard for the so-called regular avenues of trade than do foreign manufacturers, who, as is well known, regularly solicit and sell to small retailers and consumers, and in fact to any trade that will purchase.

TRADE AGREEMENTS.

A word concerning trade agreements, which are suggested as a source of manufacturers' profits. It is doubtless true that a policy agreed upon by members of any one manufacturing company or by the trade in general, looking to the removal of unbusinesslike practices and the reduction of needless expenses, is in many cases of advantage to the merchant, also the manufacturer. The policy of an individual manufacturer or merchant is as likely to be unfavorable to the trade at large as is the agreed policy of an association of manufacturers or of merchants. In the latter case there is usually given due consideration to the relative standing of retailers and jobbers, which should be on an honorable and healthy basis for the benefit of all.

The associations of jobbers and retailers doubtless have in view, through mutual agreements, the bettering of their condition by the removal of various evils and so far as possible the regulation of prices and the methods of selling goods through the channels by which they believe the manufacturers' goods should be distributed. This also would seem to be beneficial and profitable to

the mercantile trade, otherwise the various trade organizations now so numerous would not be maintained.

In other words, trade agreements and associations of various kinds exist in endless variety in every department of activity. They may be of equal benefit to merchants, to workingmen, who use them extensively, or to manufacturers, and so long as they are honorable they will be mutually respected. The Associated Press, one of the closest and most complete organizations of this nature, gives to its membership of the daily newspapers great advantages through co-operation in economically securing and distributing news, but always exclusively for its members. Placed between organized labor on one side and organized customers on the other, with the attrition of bitter competition in the middle, thus between the upper and the nether mill stones the position of the manufacturer may not be as peaceful as the report would indicate.

MANUFACTURERS' FRIENDLY ATTITUDE.

The purpose of this introspection is, if possible, by an examination of ourselves to ascertain if the attitude of this association as a body concerning this catalogue house question has been consistent and friendly or otherwise. If it were not the desire of our members to work if possible, and as far as possible, in harmony with the merchants, you certainly would not be in attendance at a convention where you expect to be with the merchants in joint session.

The high character and unquestioned integrity of the members of the Joint Committee should be an assurance to us that they will not intentionally place the manufacturers in an improper light. As they are strong and vigorous business men they will press this matter, which has been committed to them, and the hope will be that in view of the many interests involved and the different view points from which some manufacturers are compelled to consider the matter they will exercise patience with their perseverance.

There appears to be no official action which we are called upon to take in the matter.

TRADE-MARKS AND SPECIAL BRANDS.

In the consideration of the subject already referred to, it appears that there are a few of our members who ask the question, that having discontinued the sale of their goods to catalogue houses, to retailers and consumers, all of whom buy their regular brands, and hereafter restricting their trade absolutely to jobbers, who will use exclusively their own private brands, what would be the future of manufacturers' trade-marks, their reputation, which has been acquired as the result of years



JOHN E. HARBSTER.

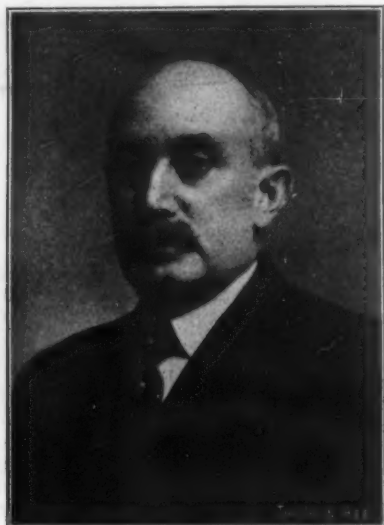
of honest effort and patient skill, and, in fact, all that enters into what is known as the good will of the business?

At our last meeting, finding ourselves facing this problem, by your unanimous vote you made the subject of jobbers' special brands one to be considered at this convention. Your Executive Committee has therefore arranged for an executive session to consider this question, to be held on Thursday morning, to which accredited members of the National Hardware Association have been invited. It was thought proper that, as on some other subjects, we should hear from the jobbers, that we

might be informed on the matter from their standpoint.

By special brands, as considered at your last convention, was meant in general all the many brands and labels which are adopted by merchants and which become their private and exclusive property, and which may be placed on goods which they may buy from any factory or from various factories.

Each jobber may control and use a number of these brands. One manufacturer has stated that at the time when he made an investigation there were in his estab-



C. M. KING.

lishment goods bearing 246 varieties of jobbers' brands, and that on his shelves were more than 1400 different kinds of labels which he is regularly called upon to use.

It therefore appears that the subject is one of commanding interest to nearly all manufacturers. You have the opportunity at this convention to fully discuss this subject with the jobbers. A perfectly frank and plain statement of the situation as you see it, if made in the right spirit, is sure to command the respect of the jobbers and retailers. They have speakers already chosen who are certain to speak with absolute freedom, knowing that you will receive what they may present as you will any business proposition from fair minded, honorable business men. If they were to speak reservedly and with the fear of opposing your views it would be useless for them to undertake the preparation.

Therefore, if the subject interests you or is likely to interest you in the future, take it up as freely as they will do while it is in reach.

LABOR.

Archbishop Glennon the other day expressed his objections to certain proposed amendments to the Constitution of the State of Missouri, which contemplated a fixed annual tax for free school books and the pensioning of policemen. The chief ground for objection was that it was a step toward socialism. This position was bitterly criticised by the socialists. In his sermon of last week the Archbishop is reported to have said that the socialists admitted that the measure was socialistic, but they further declared that they were in favor not only of free text books, but also of free food and free clothes. The main body of workingmen have too much self respect to assume such an attitude, but some union leaders certainly entertain this position.

It therefore seems a travesty on labor to state that the labor question is again before us for consideration, when, in fact, the real question is concerning the prevention of labor, in other words, idleness, enforced by socialistic and anarchistic leaders, men of the type that stopped the business of a dozen railroads, destroyed hundreds of loaded freight cars and other valuable property in the Chicago strike, the loss of which fell more on widows and orphans than on railway managers; men who blow up mines and depots to kill friend with enemy, men who will prevent industrious law abiding workmen from earning a living for their dependent ones, men who argue for free food and free clothes to be earned and paid for by men who do labor, men of the Sam Parks type of leadership, who not only draw salaries from the honest, helpless workmen, whom they dupe, but in many cases levy blackmail on employers.

At times, by the consent of some one, they control powers for destruction greater than that which rests in

the hands of any other existing human agency in time of peace. These persons pose as laboring men and characterize those who object to their methods or who would employ or patronize other than union establishments as enemies of labor. All this while the real laborer, whom every man respects, is prevented from pursuing a chosen calling at will or from developing that skill which with patience and thrift has led thousands of steady men to prosperity. Nearly all of these factory managers and officers, beginning at the bottom of the ladder, have led the strenuous life. Being one of the many who are here and who have labored the long hours each day before modern regulations shortened the day's work and introduced numerous holidays, we certainly share with each other in profound respect for the workman. We have been there. None but the dissolute among the poor look upon those in apparently easy circumstances as their natural enemies or desire to pillage their homes or destroy their property. None but the dissolute among the rich speak in opprobrious terms of the vices and follies of the poor.

The advantage and prosperity of workingmen's unions have been generally recognized so long as they were led by honorable men, having in view the improvement of their social, financial and moral condition, or any honorable ends. When unionism is led to anarchy and the abandonment of moral obligations, the quicker we study the cause and the remedy the better. The issue should be met and met squarely.

Before concluding please permit one concrete illustration of union leadership as many labor unions are at the present time directed, showing the uncertainty of agreement and arbitration so often recommended.

A LABOR UNION EXPERIENCE.

Several years ago accredited representatives from each of the States and Territories in the great Louisiana Purchase, having convened, decided that the centennial of that purchase should be celebrated by an appropriate exposition. St. Louis being its largest and most accessible city was at a later meeting unanimously selected as the site for the celebration, and its citizens were invited to assume that vast responsibility which was sure to devolve upon the city where it would be held. The United States Government formally approved the plan and it became a national enterprise.

Previous to the election of directors or the inauguration of any work it was urged by the business men that the labor features of the undertaking were of vital importance and that an agreement and understanding with the building trades unions at the outset should be reached to prevent strikes, misunderstandings and resultant delays in the work and which would be better for all parties in interest than arbitrations and delays after differences had arisen. The official head of the Building Trades Council was accordingly invited to a subsequent



WM. H. HAYS.

meeting. He was given a full history of the enterprise and the plans, so far as they could be outlined—that, as a condition precedent to entering upon them, the citizens and city of St. Louis must provide at least \$5,000,000 in cash, the State of Missouri more than \$1,000,000, and the Government and other States an amount to make a total of \$40,000,000. The greater part of this enormous sum was to be expended for labor, and the union laborers

would be the greatest beneficiaries. He was informed that the directors expected no reward for their arduous labor and responsibility, that the stockholders expected little or no dividend. Their own Government, State and city, would make their appropriations. It was not an enterprise for pecuniary profit, but for the education and edification of the masses, old and young, for all the world would be brought together. Every branch of science, art and learning would be represented. The most eminent scholars, artists, musicians and scientists would be brought together, contributing their best thoughts and productions, from which all might profit.

Having presented substantially this outline, it was said: "We desire to know before proceeding with this tremendous undertaking what will be the attitude of the labor unions. If we thus recognize them will they avoid demands for increased wages on World's Fair work? Will they evince the same civic and patriotic pride as would be shown by those who cast in their thousands of dollars? Will they prevent strikes and peacefully enjoy the advantage for work which this great undertaking will afford?"

The matter was laid before the branches of the Building Trades Council and reported back in all respects favorable to all the requests made. The union official was accordingly elected a World's Fair director, that he might be kept in harmony with advancing events.

Instead of \$5,000,000, responsible citizens of St. Louis subscribed and have paid nearly all of \$5,250,000 of stock; the city, States and Government have paid what was asked from them; foreign nations have done their part. The first preliminary contracts were let and union labor was exclusively used on such work. Scarcely had the workmen's trowels been wet in the first mortar when demands were made for advanced wages. They were followed by strikes in rapid succession until the end, many months being spent by one trade, then another, in idleness. Hardly was one demand met and admitted when within two weeks it might be followed by another in the same craft until, step by step, they reached in several trades \$8 for eight hours' work, with a reduced amount allowed to be accomplished, 40 per cent. below the regular amount, and double wages for overtime, the rates being higher than charged outside the grounds.

Nonunion men doing little jobs for exhibitors were assaulted. The Fair must be ready. Near the completion about 30,000 men were working on the grounds, receiving from \$75,000 to \$90,000 per day more than agreed. A willingness was shown to wreck the entire enterprise by demands and delays. The association, by reason of this infidelity, was compelled to ask the United States Government for a loan of \$4,600,000, not 1 cent of which would have been asked for or required had the building trades unions lived somewhere within the spirit of their agreement.

It may be useless to ask where were the greater number of such leaders born—where did they receive their training? We have associated with us in our various establishments men in the greater number of whom we have implicit confidence. In many cases this is the result of years of mutual friendly relationship, which make us feel the deepest interest in their welfare. They are workmen and are no more to be classed with the labor leaders, who are upturning many good enterprises, than you manufacturers who may be prosperous are to be classed with those who produce nothing and profit only by the loss of others. The real laborers and manufacturers are producers; therefore your interests should be in common. It will be our privilege at this convention to listen to Hon. D. M. Parry, who will lead us to a better knowledge of these relations.

A WORD FOR THE DEPARTED.

Our periodical gatherings, with all their pleasant features, also become the occasions for serious thought. At our last annual meeting there were present two familiar faces that we do not see here to-day. Oliver Williams of Catasauqua, Pa., who was at the head of a number of important industrial establishments, and who was the chairman of one of our committees, has passed to the beyond. Mr. Williams represented the highest type of Christian manhood. He was a benevolent, systematic and successful business man, an able writer and a felicitous speaker. We will never forget his genial presence, his clear and logical utterances, always given in a happy vein, which betokened his generous impulses and noble spirit. His 72 years seemed to cast a sunshine on his silvered brow.

On the 18th of last month, at Riverton, N. J., Tom Almgill of G. & H. Barnett & Co. also passed away. Mr. Almgill was a prominent figure in our gatherings. He was highly respected and beloved not only by our membership but by a very wide circle of friends both at home and in other trade circles throughout the country. Thus the milestones into headstones change.

The thanks of this body are due to the members of the Executive Committee and to the chairmen of other com-

mittees for the untiring and intelligent services which they have given to the work of this association.

You have among them and in the rank and file of your membership the best material from which to select a capable presiding officer, who at this convention should be elected to succeed to that position, and to whom you will certainly give the cordial support which you have accorded to the present incumbent.

SOUVENIRS.

Following is a list of the souvenirs which were distributed at the convention:

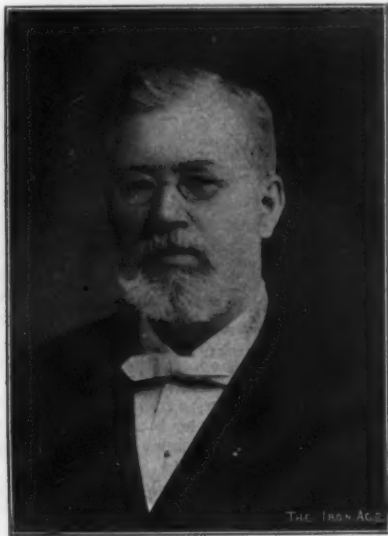
- READING HARDWARE COMPANY, Reading, Pa.: Art metal Ink-stand, art metal Paper Weight and Badge.
- UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Cartridge Shell inclosing Manicure File.
- SIMONDS MFG. COMPANY, Fitchburg, Mass.: Miniature Hand Saw Watch Charm with gold plated handle, miniature Circular and Hand Saws mounted on hat pins for the ladies.
- AMERICAN AXE & TOOL COMPANY, Glassport, Pa.: Hatchets inscribed with the names of the officers of the N. H. A. and the trade-mark of the company.
- YALE & TOWNE MFG. COMPANY, Stamford, Conn.: Yale Lock Paper Weight, Bower Barff finish, with paracentric key.
- RUSSELL & ERWIN MFG. COMPANY, New York: Russwin key design pocket Screw Driver.
- IVER JOHNSON'S ARMS & CYCLE WORKS, Fitchburg, Mass.: Metal and porcelain Ash Trays, Bottle Blow Horns.
- J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Thermometers in oxidized metal cases.
- MCCAFFREY FILE COMPANY, Philadelphia: Manicure Files in leather cases.
- BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Metal Match Safe and Cigars.
- LUFKIN RULE COMPANY, Saginaw, Mich.: Metal Rulers, U. S. standard gauge; steel and linen spring Tape Measures.
- E. C. ATKINS & Co., Indianapolis, Ind.: Sterling silver Ink Cuff Buttons, circular saw design.
- PETERS CARTRIDGE COMPANY, Cincinnati, Ohio: Paper Cutter with cartridge case handle, inclosed in shell tube with 12 gauge shells forming the ends; Cartridge Stick Pins.
- MAYER & Co., Philadelphia: Gold Medal Manicure Files.
- NORTH BROS. MFG. COMPANY, Philadelphia: Bronze medal suspended from a bar bearing the design of a "Yankee" Screw Driver.
- THE WM. SCHOLLEHORN COMPANY, New Haven, Conn.: Ticket Punches.
- CHICAGO HARDWARE COMPANY, Chicago: Bronze medallion of the late President McKinley.
- G. & H. BARNETT COMPANY, Philadelphia: Black Diamond Manicure Files in leather cases.
- S. R. DROESCHER, New York: Folding pocket Button Hooks and Manicure Files in leather cases.
- INTERNATIONAL CUTLERY COMPANY, Fremont, Ohio: Cigar Cutter and Pocket Scissors.
- AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: Leather Card Cases and Note Books with calendar and pencil.
- COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: Desk Clock and Calendar in seal leather case.
- SIMEON L. & GEO. H. ROGERS COMPANY, Hartford, Conn.: Pickle Forks and miniature Teaspoons.
- BRYDEN HORSE SHOE COMPANY, Catasauqua, Pa.: Horseshoe Pen Rack and metal Watch Charm.
- L. & I. J. WHITE COMPANY, Buffalo, N. Y.: Oxidized metal Match Safe.
- CRONK & CARRIER MFG. COMPANY, Elmira, N. Y.: Little Giant Combined Check Perforator and Paper Cutter.
- CHICAGO FLEXIBLE SHAFT COMPANY, Chicago: Leather Pocket-book containing a new Philippine one-centavos piece.
- HART & COOLEY MFG. COMPANY, New Britain, Conn.: Miniature wrought steel Registers.
- BUFFALO OIL, PAINT & VARNISH COMPANY, Buffalo, N. Y.: Miniature Paint Can containing dice.
- TROY NICKEL WORKS, Albany, N. Y.: Miniature Automobile.
- BRONSON-WALTON COMPANY, Cleveland, Ohio: Cigars for banquet.
- P. D. WARREN MFG. COMPANY, Chicago, Ill.: Card Dominoes in leather cases.
- WYETH HARDWARE & MFG. COMPANY, St. Joseph, Mo.: Leather Match Box.
- BEALL SHOVEL COMPANY, Alton, Ill.: Key Ring and Tag.
- PIKE MFG. COMPANY, Pike, N. H.: Box containing maple sugar, spruce gum and miniature samples of Oil Scythe Stones.
- SMITH & HEMENWAY COMPANY, New York: Court plaster case.
- CLEVELAND TWIST DRILL COMPANY, Cleveland, Ohio: Locomotive speed schedule.

THE CARD PARTY.

The euchre given by the ladies in attendance at the convention was held in the Japanese room at the Hotel Rudolf on Thursday evening and assumed proportions far beyond even the hopes of the committee. The affair could well be called national in character, the players having assembled from all parts of the United States, and, with many representatives from Canada, took on even an international character. Prizes were donated by

manufacturers from all over the country and aggregated over 600 in number, with a value above \$2500. These were displayed in the lobby of the hotel during the afternoon and included articles both useful and ornamental. Ninety tables were occupied by the players. The cards used were donated by the J. D. Warren Mfg. Company, Chicago, Ill., and were a part of the exhibit of that company at the Louisiana Purchase Exposition, St. Louis. Each deck was inclosed in a leather case and they were retained as souvenirs by the ladies playing.

The arrangements for the euchre were in charge of Mrs. George W. Trout of Chicago, who voiced the feeling of the entire committee in saying that the manufacturers deserved the greatest commendation and sincere thanks for their liberality in the donation of the various prizes. Mrs. Trout had as her associates on the committee Mrs.



W. P. BOGARDUS.

Henry Taylor, Chicago; Mrs. C. A. Knapp, Sioux City, Iowa; Mrs. H. J. Lee, Omaha, Neb.; Mrs. Walter W. Birge, St. Louis, Mo.; Miss Edna Disston, Philadelphia; Mrs. H. W. Avery, Cleveland, Ohio; Mrs. C. D. Clark and Miss Clark, Peoria, Ill.; Mrs. T. James Fernley and Miss Fernley, Philadelphia; Mrs. H. H. Rudd, Cleveland; Mrs. F. S. Kretsinger, Cleveland; Mrs. S. C. Pratt, Greenfield, Mass.; Mrs. J. E. Gaitley, Albany, N. Y.; Mrs. J. C. Kroner, La Crosse, Wis., and George W. Trout, Chicago; C. D. Clark, Peoria, Ill., and H. H. Roberts, Chicago.

A list of the prizes donated follows:

HENRY DISSTON & SONS, Philadelphia: Fancy Silver Clock, two dozen Hand Saws and Butchers' Saws.
 LANDERS, FRARY & CLARK, New Britain, Conn.: Set of Carvers in case.
 NORTH BROS. MFG. COMPANY, Philadelphia: Twin Freezers, Ice Chippers, Tool set, toy Freezers.
 ATHA TOOL COMPANY, Newark, N. J.: One dozen nicked Hammers.
 FAYETTE R. PLUMB, INCORPORATED, Philadelphia: Nine Cleavers, six Hammers, Knives, &c.
 CHAS. PARKER COMPANY, Meriden, Conn.: Ash Receivers and Match Boxes.
 D. MAYDOLE HAMMER COMPANY, Norwich, N. Y.: Two Hammers.
 READING HARDWARE COMPANY, Reading, Pa.: Parlor Lamp and Shade, brass and onyx Table, Mirror in brass frame, Candelabra and fancy articles in art metal and hand painted china ware.
 S. R. DROESCHER, New York: Four cases Scissors.
 BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Washing Machines.
 W. H. DAVENPORT FIRE ARMS COMPANY, Norwich, Conn.: Two Sugar Bowls and Pitchers.
 KAMPFE BROS., New York: One case Star Razors.
 SPILLER & SPRINGER, New York: Leather Knife Case.
 WALLINGFORD MFG. COMPANY, Wallingford, Vt.: Barden Grass Hooks.
 CLEVELAND STONE COMPANY, Cleveland, Ohio: Family Grindstone.
 GOODELL-PRATT COMPANY, Greenfield, Mass.: Two Tool Sets.
 ONEIDA COMMUNITY, LTD., Kenwood, N. Y.: Berry Spoon.
 WM. SCHOLTHORN COMPANY, New Haven, Conn.: Two gross ticket Punches.
 HUMASON & BECKLEY MFG. COMPANY, New Britain, Conn.: Pocket Knives.
 STANLEY RULE & LEVEL COMPANY, New Britain, Conn.: Fancy Rule.

LAKE ERIE IRON COMPANY, Cleveland, Ohio: Carriage Bolts in packages.
 MILLER BROS. CUTLERY COMPANY, Meriden, Conn.: One dozen pearl handle Pocket Knives.
 A. ROGERS CONRAD, Orange, N. J.: Two patent Pot Scrapers.
 E. C. ATKINS & Co., Indianapolis, Ind.: Assortment of Saws and Playing Cards.
 MERIDEN CUTLERY COMPANY, Meriden, Conn.: Pie and Cheese Knife.
 INTERNATIONAL CUTLERY COMPANY, Fremont, Ohio: Box of Scissors.
 CHAPIN-STEPHENS COMPANY, Pine Meadow, Conn.: Set Rules.
 WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.: Rifle.
 AVERY STAMPING COMPANY, Cleveland, Ohio: Box of Hollow Ware (complete).
 COLUMBIAN ENAMELING COMPANY, Terre Haute, Ind.: Granite Rice Boilers.
 DANA MFG. COMPANY, Cincinnati, Ohio: Ice Cream Freezers.
 WINSLOW SKATE MFG. COMPANY, Worcester, Mass.: Two pairs Skates.
 WIEBUSCH & HILGER, New York: One case Silver Plated Scissors.
 OHIO TOOL COMPANY, Columbus, Ohio: Plane, in fancy case.
 YALE & TOWNE MFG. COMPANY, New York: Two Silver Plaques.
 AMERICAN STEEL & WIRE COMPANY, Chicago, Ill.: Leather Bag.
 HOPKINS & ALLEN ARMS COMPANY, Norwich, Conn.: Rifle.
 PIKE MFG. COMPANY, Pike, N. H.: Pin Trays and souvenir stones.
 L. & I. J. WHITE COMPANY, Buffalo, N. Y.: One set Socket Chisels, one set Tang Chisels, in leather case.
 BISSELL CARPET SWEEPER COMPANY, Grand Rapids, Mich.: One dozen Carpet Sweepers.
 CLYDE CUTLERY COMPANY, Clyde, Ohio: Hand painted Chop Plate.
 J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Rifle.
 CORBIN CABINET LOCK COMPANY, New Britain, Conn.: Two brass Candlesticks.
 ENTERPRISE MFG. COMPANY, Philadelphia: Set asbestos Sad Irons, two Food Choppers, Ice Shredders, Polishing irons, &c.
 GEO. H. BISHOP & Co., Lawrenceburg, Ind.: Two Saws.
 AMERICAN FORK & HOB COMPANY, Cleveland, Ohio: Cut glass Vase.
 MILLERS FALLS COMPANY, New York: Five Tool Sets.
 BEALL SHOVEL COMPANY, Alton, Ill.: Three Shovels, one Toy Scoop.
 NATIONAL SPECIALTY COMPANY, Philadelphia: Coffee Mill, Food Chopper.
 SUPPLER HARDWARE COMPANY, Philadelphia: Lawn Mower.
 ROME MFG. COMPANY, Rome, N. Y.: Three Tea and Coffee Pots.
 WHITE MOUNTAIN FREEZER COMPANY, Nashua, N. H.: Freezer outfit.
 C. M. AVERY & Co., Chicago: Food Chopper.
 AMERICAN SHEET & TIN PLATE COMPANY, New York: Bronze Statue.
 AMERICAN WRINGER COMPANY, New York: Twelve Gem Toy Wringers, one Royal Wringer.



M. L. COREY.

BRONSON-WALTON COMPANY, Cleveland, Ohio: Coffee Mills, Dripping Pans, &c.
 P. & F. CORBIN, New Britain, Conn.: Teapot, Sugar Bowl, Creamer, Cup and Saucer, Vase.
 IRWIN AUGER BIT COMPANY, Wilmington, Ohio: One set of Bits in case.
 J. D. WARREN MFG. COMPANY, Chicago, Ill.: Playing Cards in leather cases, Domino Cards in leather cases.

The Banquet.

The annual banquet, which was held on Friday evening in the Rudolf under the auspices of the National Hardware Association, was most successful. About 300

ladies and gentlemen participated, sitting at small tables accommodating groups of six or eight persons, which proved a very agreeable arrangement. The banqueting hall of the Rudolf contains many pillars, but this disadvantage during the speaking which followed the dinner was overcome by removing the tables in the immediate proximity of the speakers' table, and filling up the space thus created with a sufficient number of chairs to accommodate the guests, who were thus in an excellent position to hear and enjoy the eloquent addresses which were made by prominent members of the trade.

Samuel A. Bigelow, president of the National Hardware Association, presided over the gathering, and at the close of the dinner introduced T. James Fernley as toastmaster, a position the duties of which Mr. Fernley admirably discharged. Following was the toast list:

"NATIONAL HARDWARE ASSOCIATION," the President.

"OUR COUNTRY AND ITS COMMERCIAL INTERESTS," Hon. A. Chamberlain, Governor of Connecticut.

"WHERE ARE WE DRIFTING," William W. Supplee, Supplee Hardware Company, Philadelphia.

"AND THE LION SHALL LIE DOWN WITH THE LAMB," F. S. Kretzinger, vice-president American Hardware Manufacturers' Association, Cleveland.

POEM, written specially for the occasion, Hon. W. R. Walkley, Peck, Stow & Wilcox Company, New York.

"TWENTY-FIVE YEARS," S. Norvell, Norvell-Shapleigh Hardware Company, St. Louis.

"OUR NATION'S PROGRESS," A. C. Rulofson, San Francisco, Cal.

A feature of the banquet was the leather wallet or cigar case which was presented to each guest. The pocket contained a number of small cards, including the *menu* and toast list and several cards for autographs. This idea was Mr. Fernley's, who is also to be specially congratulated on the admirable arrangements, to which he gave his personal attention.

THE READING HARDWARE COMPANY.

The Reading Hardware Company, Reading, Pa., headed by its president, John Harbster, and the Ringgold Band of Reading, Pa., came to the convention 90 strong. Their headquarters were at the Hotel Rudolf, occupying an entire wing of the second floor of the hotel. Here an elaborate display of their wares was made, some 800 pieces in all, composing one of the most complete lines of Architectural and Builders' Hardware, Lawn Mowers, specialties and Art Metal Goods, the latter being the product of the plant of the former National Brass & Iron Company of Reading, which was acquired by the Reading Hardware Company in 1903, and which includes the manufacture of Clocks, Trays, Mirrors, Tables, Lamps, Cabinets, Statuary, Vases, Candelabra, Art Pieces, hand decorated China, Gas and Electric Fixtures, &c. The elaborate display of these goods was made to acquaint the trade with the new field of manufacture in which the company is engaged. Prominently displayed in the headquarters of the secretary of the company was a copy of the first catalogue issued by it. This was viewed with great interest by every visitor. It was made up of a single sheet 14 x 18 inches, suitably framed. Its title was "The Reading Hardware and Malleable Iron Works, Reading, Pa.—Philadelphia Depot, 415 Commerce Street. M. Harbster, agent," and was dated 1858-59. Prominently at the head of the sheet the following terms were noted: "All goods bought within the month are due in cash on the 10th day of the succeeding month, with 10 per cent. off." Some of the prices quoted are worthy of mention, while it is also of interest to note the extensive use of illustrations in this old catalogue. Turnbuckles, star type, were listed at \$5 per gross; Porch Post Supports, \$1.50 to \$1.75 per dozen; Iron Twine Boxes, "Globe" type, \$4.50 to \$5.50 per dozen, with other articles in like proportion. It is interesting to compare this single sheet catalogue with those of the company of the present day, their architects' edition containing 458 pages and their general catalogue 670 pages, both bound in heavy board and leather. In 1858, we are informed, the Reading Hardware & Malleable Iron Company employed a working force, including William, Mathan and John Harbster, of 17 men, and its plant occupied a ground space 30 x 60 feet. In 1904 this has grown to a total of 3600 employees and plant covering acres of ground.

Under the auspices of the Reading Hardware Company the Ringgold Band and Orchestra, vocal and instrumental talent, furnished the musical entertainment of the convention, playing at concerts, receptions, banquets and various other functions. Aided by its force of direct representatives the officers of the company entertained their guests and friends, explaining the various features of their display. Symbolical badges and souvenirs, consisting of art metal Paper Weights, were given their various friends, while the visiting members of the National Hardware Association were presented with a novel and beautiful art metal Inkstand. It was the consensus of opinion of those attending the convention that the company had done much toward the enjoyment of the delegates and visitors and that great credit was due for its very liberal treatment in every direction.

On Wednesday evening the officers of the company entertained a number of their guests and representatives in the *café* of the Hotel Rudolf. Impromptu addresses were made by John E. Harbster, W. H. Bennett and a number of others.

CONVENTION NOTES.

The American Screw Company, Providence, R. I., tendered a dinner to the Executive Board of the National Hardware Association on Thursday night in the private dining room in the *café* of the Rudolf. Covers were laid for 16.

E. C. Atkins & Co., Indianapolis, Ind., entertained their guests and friends throughout the convention in Parlor H at the St. Charles Hotel. Nelson A. Gladding, Walter L. Sanford, F. Herbert Smith and J. F. Carey represented the company, and one or more of the gentlemen were always "at home" to greet their visiting friends.

Theo. Huss and H. G. Hollis of the Lufkin Rule Company, Saginaw, Mich., entertained their many friends at the Rudolf. In addition to advising them that they were the largest manufacturers of Measuring Tapes in the world they presented them with Measuring Tapes and U. S. standard 12-inch Rules.

The Bullard Automatic Wrench Company, Providence, R. I., demonstrated in the Rudolf lobby its new Automatic Wrench, which John L. Blaisdell, the company's representative, said was equally efficient on fittings and straight pipe in corners, against walls, between walls, in ditches, or any position requiring the use of a Monkey, Ratchet or Pipe Wrench.

The Boss Washing Machine Company, Cincinnati, Ohio, exhibited and demonstrated in Parlor J of the Hotel Rudolf its Boss Rotary, Banner Rotary, Double Acting Boss and the 1904 Automatic Washers. These machines were afterward donated as prizes for the euchre on Thursday evening. Conrad Dietz and Edward L. Enneking represented the company at the convention.

North Bros. Mfg. Company, Philadelphia, entertained its guests in Parlors H and I, Hotel Rudolf, where a demonstration of the American (2 in 1) Twin Freezer was made. This Freezer freezes two flavors of ice cream or an ice or sherbet and ice cream at one and the same time, in one Freezer. Visitors were permitted to take part in the operation of making as well as sampling the product. The latter privilege was particularly pleasing to many guests.

The Discussion on Special Brands.

AT the meeting of the American Hardware Manufacturers' Association held at Atlanta in June it was decided to make special brands one of the topics for consideration at the Atlantic City gathering, and an invitation was extended to the National Hardware Association to join in the discussion in order that the matter

might be regarded in its various aspects. A joint meeting was accordingly held on Thursday afternoon at the St. Charles Hotel, at which representatives both of the jobbers and the manufacturers spoke on the subject. In this way, without formality, the views of both classes in interest were brought out, and a very interesting and suggestive discussion was the result. We give below the substance of most of the addresses:

ADDRESS OF FRANK DICKERSON OF THE AMERICAN SHEET & TIN PLATE COMPANY.

The chairman in stating the subject for discussion I think gave the impression that it was a new one. I would disagree with what he said. It seems to me that I recall some years ago, before the Manufacturers' Association was founded, a discussion upon this subject in which perhaps I took part. I did in thought if not in speech. I had thought from the lovely way in which our company was received by all jobbers upon this subject that the subject was settled. I considered it dead. I am reminded in that connection of a good lady who fell sick, so sick that she finally passed into a comatose state, even lost consciousness. Recovering consciousness, however, she was surprised on opening her eyes to see a trained nurse sitting at the foot of the bed reading a novel and smoking a cigarette. She said: "Nurse, what on earth does this mean?" and received the somewhat startling reply: "Oh, I thought you were dead." The subject is not dead it seems; it has come to life again.

BRAND SYMBOLIZES QUALITY.

Now, a brand stands for something—what? Quality. Of what does quality consist? Two things, material and workmanship. Who controls these elements of quality? You will all agree, I believe, that the manufacturer controls them. The control therefore of the brand is in the manufacturer. Theoretically at least it originates with him. It is his duty to see that the quality is upheld. The jobber is one who buys in large quantities, puts the goods into his warehouse and sells in smaller quantities. To have success we will all agree he must be honest in all his dealings. He will therefore only handle honest qualities and honest brands. It is his duty, therefore, to handle the brand which correctly represents the quality of the goods which he sells. There is a third class of people interested, however; they are the final buyers—the consumers. They are entitled to receive the same quality that the brand represents—that there be no discrimination in the quality received.

ELEMENTAL PROPERTIES OF A BRAND.

There are two elements that go into making up the value of the brand. One of these is its own intrinsic merit, and the other is the demand for it which has been created perhaps by long use or by judicious advertising, or both. If one man performs both of these operations by manufacturing the goods and creating the demand, is he not entitled to all the profits that come from the use of the brand? Now, these statements which I have endeavored to make seem to me fundamental principles which should govern our consideration of this subject, and it seems to me that we should meet in a spirit of fairness and give and take in its discussion. Bear in mind simply the key, the fundamental principle governing special brands and bear in mind also the question of equity and justice. Will not different conditions bring about different answers to this question? For instance, if a manufacturer has had his brand upon the market for so many, many years that it has attained a value over and above its quality—that brand having attained that quality, is not the manufacturer entitled if he so choose to do so to sell his goods under the brand which by his efforts, both of manufacture and of advertising, he has created a demand for? I think that he has. On the other hand a new manufacturer, for they are all the time starting up, comes into the market without any brand and a jobber comes to him for a special brand, and he grants it, for he has nothing of his own to prevent. To whom does the brand belong? It seems to me that I have already said that it is a question of joint ownership, for both of them, if the brand has attained a value, have done something to make that value and they should share in its profit.

I will not take up your time. I just wanted to bring before your mind some ideas in relation to it. Then in fairness and justice let us discuss this, and when we come as man to man to buy and sell let us meet in fairness and justice. We differ in our views on the policy of civil government, but we do not differ in upholding the honor of the flag or the integrity of our country. Let us discuss the problem frankly and with equity and I believe that every difficulty will be solved.

ADDRESS OF BRACE HAYDEN OF THE DUNHAM, CARRIGAN & HAYDEN COMPANY.

The seven and one-half minutes which you have allowed is so short a time for the discussion of the important subject of private or special brands, which has been a prominent topic in trade journals for some time past, and which you give such prominence in this convention, that I am of necessity forced to skim hastily over its consideration and to condense my ideas regarding it into as brief a space as possible. Not to waste any of the precious time, I will go to the root of the matter at once by the statement that many of the leading lines of goods are duplicated with private brands, for the reason that there is not an adequate net profit in selling the manufacturers' brands; sufficient profit neither to the jobber or retailer. What there is for the manufacturer you are better able to judge.

INCEPTION OF PRIVATE BRANDS.

The first question that appeals to me is, What was or is the cause for so many private brands, and as I go back many years over the history and experience of the trade, to the time when importations were gradually ceasing and our manufacturers were striving to introduce their products, it was quite the custom to make jobbers in various parts of the country agents for their goods. As trade developed and increased through loyalty or preference for domestic products, convenience in obtaining, profit in selling, or a more or less combined mixture of all these motives, it became the custom for jobbers to seek such agencies, and many had a long string of them to their credit, all duly exhibited on their letter and billheads and advertising matter. As trade extended, as it did rapidly, particularly in the West, the number of jobbers increased, competition also increased, and naturally profits decreased. Manufacturers soon found out by practical experience that to protect and maintain their prices and thereby the profits of their agents—the jobbers—it was expedient to give them some goods under some other than the factory names; from this grew the practice of special brands, the use of which is now so general. As I figure it out, this was the genesis of the innovation. It began because of necessity. It grew and continues for the same reason, and that the necessity is apparent is demonstrated by the fact that leading lines of factory brands are to-day sold by the jobbers from stock without profit, after deducting business expenses, and many of them at an absolute loss, while the goods of similar character equal in every way in quality and finish under special brands are profitable.

JOBBERS CONTROL THEIR PRIVATE BRANDS; MANUFACTURERS OFTEN DO NOT.

There is but one reason for this—namely, that jobbers control the prices of their special brands, whereas manufacturers, generally speaking, do not or will not control theirs, and being stocked by all jobbers, and also frequently used as leaders for the sale of other goods, they are doubly subject to a conflict that is extremely keen, involving more or less the entire jobbing trade. The cut prices thus established are soon widely known, the goods classed as profitless, and their sale not so strenuously urged as are the private brands; in fact, they are left to sell themselves and sold only when called for.

A PLEA FOR CONTINUANCE OF PRIVATE BRANDS.

Business having so many outlets and the territory in which a jobber may sell is of such an elastic character, in fact, limited only by his ambition and capacity for distribution (not only from stock, but for shipment direct from factory) that a low price made in any district is quickly known and felt by competitive jobbers, and the area of low prices widens and extends until they become practically universal. So by the very nature of the competition it cannot be stopped or the prices raised. No one jobber is wholly interested in the brand, therefore no one can bring about a reform, and as it is impossible for jobbers, particularly in widely scattered territories, to agree upon prices, the period of remunerative sales is not likely to be a long one. The manufacturer only is interested in the brand, and, generally speaking, has been unable or unwilling to control the jobber's selling price, even if it is to his interest to undertake it. As long as his profit is satisfactory and his volume of sales fairly normal, why should he attempt the task of seeing that every jobber gets a profit, or, rather, forcing them to make one? At least this occurs to me as the manufacturer's argument why he would hesitate upon adopting such a policy for such a purpose. As long as his brand is popular and in demand he is pretty sure of a profit, therefore why worry about the jobber? It is therefore evident that should the jobber confine his sales of first-class goods exclusively to manufacturers' brands, the competition would become so acute as to render all sales profitless, and the result would eventually be a stoppage

of this class of trade, in the loss of which the manufacturers would surely participate. How, then, can it be consistently urged that manufacturers' brands only should be sold? The retailer welcomes special brands upon which the price is maintained, as he can make a profit on these, while on factory brands competition reduces his profit in the same way that it does to the jobber. Thus the incentive for special brands becomes very great. In fact, they are a necessity.

CATALOGUE HOUSE COMPLICATIONS.

The catalogue house question, particularly with the retailer, is another reason that has stimulated the sale of special brands, for the retailer and jobber who have been instrumental in making a market for manufacturers' brands, stocking them and urging their sale so that they are either demanded or called for, find that the retailer is forced to sell at prices which afford no profit, as the cataloguer who buys at jobbers' prices, sells direct to the consumer at prices with which the retailer cannot profitably compete. Therefore there is, on the contrary, every reason why he should not, and substantial motives for his pushing other brands.

SOME ALTERNATIVES.

To increase the number of manufacturers and their brands will not lessen the competition, but it will hurt the manufacturer by reducing his profits. If jobbers are to be limited to manufacturers' brands only, then they had better confine their sales to such as are already established and well known, for to introduce the line of a new manufacturer means a competition with the older ones and necessarily a reduction in the price of both without corresponding benefit to either. It is certainly as difficult for the jobber to introduce a line under a new manufacturer's brand as it would be under his own, and on which there would be the added advantage of the maintenance of prices without increased competition.

JOBBER'S SELF PRESERVATION.

If the manufacturer created the market for the goods it would be a different matter, but where he does not and depends upon the jobber for distribution, the jobber is justified in demanding such protection as will secure to him a profit; or else in using his facilities, time and expense of his salesmen, for the benefit of his own brand and not confine his labor, efforts and capital to the manufacturer's brand on which his returns are inadequate. He is not only justified in doing so but is working to his own detriment if he does not. He ought not to employ his energies to sell goods that are unprofitable when he is not forced to. He is not warranted in doing so. He is encroaching upon his capital by such a timid and complaisant policy, and in the end he will be left in the rear rank, or will have dropped out altogether and the manufacturer's brand will have one less jobbing customer. There is a large trade for well established manufacturers' brands and always will be, and which jobbers do stock even if obliged to sell at such disadvantage, but if there is to be nothing else to sell, no opportunity for a jobber to exercise his ingenuity, no sphere for his individuality, no outlet for his talent in the sale of his own special brands, but his energies restricted to the dead level of manufacturers' unprofitable brands, then business becomes a drag and annoyance; it has no outlet or place for the ambitious, and the dry rot of indifference and negligence will result.

CONSOLIDATION OF COMPETITIVE LINES.

The consolidation of competitive lines by manufacturers has probably contributed somewhat to the use of special brands, for in the absorbing process factories are sometimes closed and their production assumed by the remaining active factories. When some change is noticed in the finish or quality of the goods turned out and proving different from those formerly purchased and being unsatisfactory to the jobber, new manufacturers are sought. Those who have started business in consequence of consolidation and the favorable condition created thereby, not having a large trade for their own factory brands, are not indifferent to good sized orders under special brands, as they are profitable and advantageous in building up business; thus both manufacturer and jobber are helped and benefited. It is a mistake to think that special brands are confined to second and third rate qualities. It is not so, for many of the special brands are of the highest quality that can be made. If they were not they would be rejected by the retailer and consumer. Therefore the jobber runs as great a risk as the manufacturer in putting out inferior goods as first quality.

POCKET CUTLERY SPECIALLY BRANDED.

Pocket cutlery is quite generally ordered under special brands and seemingly without objection, when specified in sufficient quantities and ample time granted. A writer in *The Iron Age* of recent date states that special brands of pocket cutlery are, as the trade very well

know, of first quality; not lower than the manufacturer's own brand, for it would not pay to make them of a different grade. If manufacturers of these goods with all the difficulties they labor under are able and willing to make special brands, recognizing the benefit and advantage it is to a jobber, what serious disadvantage can it be to manufacturers of other goods which are far less complex in the process of production? It is to be assumed that orders for special brands are given in sufficient amount and under conditions of delivery that are satisfactory to a manufacturer as far as profit is concerned.

BRANDING OF INFERIOR QUALITIES.

When it comes to second quality or even lower grade goods, and for which in many lines there is a legitimate and large demand and use, there can be no objection to branding at jobber's request, as the brands which manufacturers use do not indicate the maker, and, therefore, they can have no especial pride in their production, the only incentive being that of profit.

A UTOPIAN CONDITION.

It would be a fortunate condition, indeed, if some regulation of the trade could be brought about by which a moderate net profit could be made on all manufacturers' brands, but there is no evidence that such a situation is near at hand. It certainly cannot happen until manufacturers and jobbers realize very fully that their interests are interdependent; that every manufacturer of a competing line of goods cannot sell every jobber, and because he cannot he should not feel at liberty to dispose of his goods without reference to the competition he will create, and the reduction in price he will cause to those who handle other makes.

INTERDEPENDENCE.

It cannot be held that manufacturers alone are to blame for the situation, as it is the natural outcome of unrestricted distribution and competition, in which manufacturers, jobbers and retailers all take part; but we must recognize the facts, and, by realizing them more clearly some improvement may result that will be beneficial to all. It is not extravagant prices or immoderate profits that cause the trouble, but exactly the reverse. If prices could be maintained that would yield a reasonable net profit, neither the volume of sales would suffer nor would there be complaint at the trivial advance in costs.

PRIVATE BRANDS OF FIRST QUALITY NECESSARY.

It is to the interest of manufacturers, as I have endeavored to show, that there must be private brands of first quality goods. If the jobber is limited and confined to manufacturers' brands, which return such meager profit and are frequently sold at a loss, apathy will succeed activity to the detriment of all concerned; but this smacks too much of trade restraint or trade suicide to be given serious consideration, for we all must realize that before such an event could really be inaugurated, a struggle would ensue that would force the Hardware trade into such confusion that I will surrender the job of prophecy as to what the outcome would be to some abler exponent of our allied interests. But I venture the assertion that the situation would not be a happy one.

ADDRESS OF W. T. JOHNSON OF THE AMERICAN AXE & TOOL COMPANY.

In accepting the invitation of E. G. Buckwell, chairman of the Committee on Tools, and likewise that of Geo. V. Willson, chairman of the Committee on Shovels and Farming Tools, to address you, I did so with a due appreciation of the importance of the subject to be discussed, namely, that of "special brands." This being the first of your meetings that it has been my pleasure to attend, I wish to assure you of the gratification I experience in meeting with you. The increased attendance at these gatherings is indicative not only of the fact that you all derive pleasure from the social intercourse afforded, but also that there is truth in the old saying that two heads are better than one. Here in a friendly spirit matters of mutual interest can be discussed and the solution of knotty problems oftentimes found. As has been made plain to you all the one subject under discussion at this time is that of special brands, and by reason of the fact that special brands cannot be divorced from factory brands, it would seem wise to consider first what factory brands mean.

FACTORY BRAND A MANUFACTURER'S BIRTHRIGHT.

When I state that the factory brand represents the manufacturer's birthright, I have briefly but clearly defined its value. In other words, the factory brand is the good will of the manufacturer, representing in some cases a value exceeding that of the plant, because of having been acquired through the toil and energy of generations. There are brands in existence to-day that, originating

with the father, handed down to son and grandson, are now in the hands of corporate interests. The quality of these brands having not only been fully maintained, but by application of modern methods in many cases improved, it is difficult to put a true estimate upon their value, and it is the shipment into foreign countries of such goods, bearing in stamp and label the name of the maker, representing as they do American ingenuity and quality, that has advanced this glorious country of ours to its enviable position commercially among the nations of the world.

WHAT SPECIAL BRANDING MEANS FOR MANUFACTURERS.

It is a recognized fact that no such inheritance could have been created or such growths made had these goods been furnished under brands that were at the beck and call of this or that party. Hence, does it not mean that the policy now pursued, which tends to foster the growth of the special brand to the detriment of the factory brand, will in time mean that the manufacturer's only assets are his stock and machinery, as it were, he having lost his inheritance and exchanged his independence gained by the efforts of his forefathers for the bridle of the jobber?

MANUFACTURERS MUST BE IDENTIFIED WITH THEIR PRODUCT.

As manufacturers we contend that to reap the harvest due our efforts we must be identified with our product. While the less cost of producing factory brands brings a permanent return, the same is not always true of the special brand with its greater cost.

SPECIAL BRAND BOOMERANGS.

In fact, it is too frequently the case that the manufacturer gives the best of his factory's experience and skill in supplying a special brand, to find that he has launched a boomerang, when, next year, for some slight consideration, the reputation gained for the brand is turned over to a competitor.

SPECIAL BRAND CONDITIONS CONSTANTLY FLUCTUATING.

Having thus briefly outlined what the term "factory brand" implies, it would seem well to give the special brand the same consideration. Fortunately, factory brands have always stood for the best product that the manufacturer could turn out, while on the other hand special brands have not only represented first quality, but also second, third and ever fourth grade. Aside from this, recognizing the value to be gained by the permanency of the brand, the manufacturer makes few changes, whereas the jobber is constantly changing in accordance with the ideas of the sales department or the whim of the buyer, his meaning a constant change in the finish, labeling, stamping, &c., which adds greatly to the expense and establishes no permanency to the brand.

QUALITY OF SPECIAL BRANDS OFTEN REGULATED BY PRICE.

The quality of the special brand, unlike that of the factory brand, is in many cases regulated by the prices realized. My experience on the road has forced me to believe that there are manufacturers who make the punishment fit the crime. Hence the tendency under special brands is for a reduction of quality, quite the opposite of which prevails under the factory brand.

MANUFACTURER'S AFTER THOUGHTS.

The growth of the private brand is a long story, and at the start the manufacturer must acknowledge that whatever of disadvantage he finds, he has only himself to blame. In justice to the jobber we must exclude him from any responsibility in the creation of special brands. Further than that, he has, perhaps, been a precocious pupil in learning to use the weapon which the weakness of the manufacturer has furnished him in the form of a special brand, with which to combat the factory brand. The fact that this subject is brought into consideration at this meeting indicates a weakness somewhere, and presumably suggestions for a remedy are in order.

MANUFACTURERS WHO ALWAYS PUT OWN BRAND ON PRODUCT.

Before proceeding, I want to tender my congratulations to the manufacturers present and absent who have always been able to put their own brand on their product. It may appear to them, to quote an axiom, that the "way to resume is to resume," but I for one would count their experience as most valuable in contemplating a remedy for what we for the time being must consider from the manufacturers' viewpoint an evil.

GROWTH OF TRADE EVILS.

Irrespective of any other advantage that might have influenced the jobber to adopt special brands, the trade winning methods of others that made a limited profit only on factory brands, for the rank and file possibly, forced him to do so. In making this statement I have in mind the oft repeated action of some of our jobbing friends in offering to the trade, by means of circular quotations or supplementary catalogues, factory brand products very

much below the market, thereby offering a "bait" to present and prospective customers, losing sight of the incalculable harm they have done to the manufacturer of the particular line.

MANUFACTURER'S DUTY.

Therefore, is it not up to the manufacturer to devise a plan whereby the jobber's selling price of his product can be controlled? If this can be done nine-tenths of the incentive for special brands will have been removed. In my opinion concerted action on the part of the manufacturers, past and present, has been influenced through efforts on their part to protect their birthright, and as it would seem that the evil cannot be removed in any other way, our jobbing friends should take no exception in this endeavor of ours to not only better our conditions, but incidentally their own.

LESSONS FROM THE PAST.

Is it not a fact that manufacturers' associations that have controlled the jobbers' selling price have been more stable and satisfactory to all concerned than those in which the selling price was not considered? Does not the tendency of the time seem to indicate a greater willingness on the part of the jobber to co-operate with associated manufacturers, and do they not realize as time develops that the interest of the manufacturer is identical with their own and that he is not inclined to inaugurate arbitrary principles, but is depending on such only as will create a profitable market for his own brand?

A SUGGESTED REMEDY.

I have recently embraced the opportunity to discuss this question with jobbing friends and have asked them frankly to give me their views as to the remedy. The gist of their replies would seem to indicate that the first step to be taken by the manufacturer is an establishment of uniform selling prices, and that this could best be controlled by absorbing the jobbers' profit in a premium, one of the conditions of the payment of which is the maintenance of an agreed price. There are among you present here some that may consider this means arbitrary, but if you will give the matter thoughtful consideration I believe you will agree with me that it is a better solution of the problem and will accomplish better results than the extreme measures that have been advocated by some manufacturers—namely, charging extra for special brands.

ADDRESS OF W. M. TAUSSIG OF WIEBUSCH & HILGER.

I was requested by the members of the Cutlery division to present their views on the special brand question and have prepared myself slightly in regard to it. In whatever we have to say on the subject, we would like to have it understood that it is said without bitterness; we wish to carry out our chairman's suggestion, that we present our views of the case frankly and freely, and hope that it will be received in that spirit.

MANUFACTURERS OF CUTLERY IN TWO CLASSES.

All jobbers who handle Pocket Cutlery, of course, understand that there are two classes of manufacturers of these goods—namely, those who distribute their product through the jobbing channels and those who solicit trade directly from the retailers. In what we have to say we are speaking only for those who depend entirely for their business on the jobbers. Those who sell directly to the retail trade are not only not troubled by special brands, but perhaps benefited by them. To us this is a very vital question. In considering it we have no illusions as to the possibility of eliminating entirely this feature of the business. We know that a number of special brands have been on the market for years, and have established a reputation which entitles them to a permanent position in the trade. The reputation established by these special brands has been the work of many years, and has been accomplished in most cases by an almost complete identity with one definite source of supply; moreover, we do not wish to be understood as claiming that special brands are wholly objectionable when confined to parties who buy in liberal quantities; who make a specialty of the Cutlery business on a large scale and order under conditions and terms that are acceptable to the manufacturers. What we do object to and believe to be detrimental to both manufacturers and jobbers is the extent to which special brands are being insisted upon to the exclusion of factory brands where the actual or possible business does not warrant it.

LOSS OF IDENTITY; INCREASED COST OF PRODUCTION.

Of the two objectionable features to special brands that stand out most prominently—namely, loss of identity and increased cost of production—the first applies

equally to all lines of goods; the second is aggravated in the case of Pocket Knives by the great variety of patterns necessary in this business and the peculiar methods of manufacturing. In order to produce at a minimum cost Pocket Knives, like all other goods, must be made in quantities; the branding, or stamping, however, must be done in practically the initial stages of manufacture. Nothing can be done toward assembling the parts of a Pocket Knife until the brand has been put upon the blade, and, furthermore, very little can be done with the blade itself until it has been stamped with the brand, for the reason that this stamping must be done before the blade is hardened; consequently the manufacturer whose business is largely, if not wholly, dependent on special brands in small quantities is greatly hampered in producing to advantage. Quantities that may appear to the average jobber to be fairly large are, in these days of production on a large scale, comparatively insignificant to the manufacturer. The extra cost of special boxes, labels, &c., are also items to be considered, as the cost of these is naturally greater in small quantities.

WHEN SPECIAL BRANDS ARE PROFITABLE; WHEN NOT.

We recognize the difficulty and the apparent injustice of making some special brands and refusing or objecting to the making of others. Mr. X. may very properly say: "You make special brands for Messrs. A. & B., why not for me?" The chances are that Messrs. A. & B. make a specialty of the Cutlery business; order in large quantities—practically the full line that the manufacturer makes; accept deliveries practically at the factory's convenience, and thus obviate many of the objections I have enumerated. These difficulties and objections, however, do not interest Mr. X.; he does not understand why we should not be glad to supply him with special brands in small lots of 12, 6, or even 1 dozen, as long as we make special brands at all.

QUESTIONS THAT HAVE RETURNED TO PLAGUE THEIR AUTHORS.

We also recognize the fact that like our friends the jobbers in their present attitude on the catalogue house question, we are, if not in like manner, still to a certain extent responsible for the very evil we now protest against. Through keen and constantly increasing competition we have in a measure created our own troubles. In now wishing to check or modify them we are sincere in our belief that what we advocate will eventually be advantageous to the jobber as well as to us. Jobbers certainly must recognize that, just as the agitation of the catalogue house question has permeated to the smallest dealer, so also has this question of special brands. The manufacturers who go direct to the retailer have always made a special point of "factory brands," and their activity in this direction will certainly not decrease. I may say here that, as a class and in proportion to their investment, these manufacturers have been vastly more prosperous than those who have confined themselves to the jobbers. They are steadily increasing their field of operations, and our conviction is that the prevalence of special brands to almost the exclusion of factory brands among jobbers, and not the question of price, is what is materially aiding them.

WHY DOES THE JOBBER WANT SPECIAL BRAND ON CUTLERY?

First, no doubt, because he wishes to establish a permanent demand for his brand in his territory. But unless this is done on a large and liberal scale, with a complete assortment, is this possible where almost every other jobber in the same territory is trying to do the same thing? Second, in order that he may freely ask through his salesmen prices that he considers legitimate, without fear of being confronted with a lower (even if still profitable) price on the same pattern by his competitors. But does he really accomplish this, and, if he does so, is it wise? That some goods cost more to market than others, both in time and expense, we all realize, and Cutlery is certainly one of these items. Furthermore, the jobber is certainly entitled to consider the loss on dead stock, samples, &c. But is he not tempted to ask too much profit on Cutlery and thereby open the door to the competition, not of his brother jobber, but of the manufacturer who goes direct to the retailer, and the so-called "special Cutlery houses"? Quite aside from the question of price, is he not hampered in the competition by the special brand question? His assortment of Cutlery is naturally limited by the selection the buyer makes in placing his season order, and this assortment is influenced by the quantities he is asked to buy to justify in a small measure "special brand." Such quantities, while large from his point of view, are still small to the manufacturer. His assortment is therefore limited, and he cannot increase the same from time to time as occasion arises, but must wait until he makes up his regular order. His stock is easily broken, as the most skillful buyer of Cutlery cannot anticipate definitely the quantity of each pattern which will be called for. If one pattern sells more

largely than the buyer expected, his stock cannot be replenished for at least three or four months, and he thus runs the chance of losing sales, as well as of carrying over for another season stock that comes too late. If he carried a "factory brand," his assortment could be larger, with practically no greater investment than he makes for a small assortment under special brand.

MANUFACTURERS MUST ULTIMATELY SETTLE QUESTION OF BRANDS.

Of course the solution of this question is in the hands of the manufacturers, provided they wish to exercise their power and can agree on a united policy. The difficulties as to this, however, are very great, and for the present we are not prepared to suggest a definite remedy. All we wish to do to-day is to call the attention of our jobbing friends to the ultimate detriment which it appears to us the abuse of special brands on Cutlery will lead to. To-day the jobber realizes the mistake made in building up the catalogue house business. Will he not realize, too late, the overdoing of the special brand business?

ADDRESS OF R. A. KIRK OF FARWELL, OZMUN, KIRK & CO.

In the short time allotted for this discussion it is necessary to proceed at once to the subject, "Special Brands." I observe that special brands have come into existence largely through the joint action of manufacturers and jobbers, in which the retail trade has also had a part. If, on the one hand, the jobber has earnestly desired to have his own brand, he has always been able to find the manufacturer who would take it—if he had an attractive order to offer—and not infrequently it has not been necessary for the jobber to expend any energy in soliciting a manufacturer to take the order. On the contrary, the manufacturer has been quite ready to offer every argument and inducement at hand to secure the order, and has not hesitated to picture in glowing terms to the possibly reluctant jobber the alleged great advantages he might expect to find in building up his trade in private brands. It is, therefore, fair to say at the outset that the manufacturer has had his full share in the introduction and continuance of special brands.

THE REASON FOR SPECIAL BRANDS.

The demand for special brands by jobbers has come from exactly the same causes as have led the manufacturer to adopt his regular factory brands. Special brands have not been adopted by the jobber to hoodwink the trade and consumer. In this discussion I insist that we drop the assumption that the jobber, any more than the manufacturer, has adopted and pushed his special brand in order that he may sell an article of inferior quality at a disproportionately higher price. Doubtless some jobbers have done this just as some manufacturers have done the same thing. It all depends on who the jobber is, just as, on the other hand, it always depends on who the manufacturer is. The real jobber is precisely as much interested in building up a high and permanent reputation on his special brand as the manufacturer is on his factory brand, and every argument that can be used in favor of the manufacturer furnishing honest goods will apply to the jobber with equal force, and the jobber who tries to build his special brands on any other foundation is only digging his own grave. Unless he changes his policy, he will, sooner or later, fill it. The jobber, like the manufacturer, may have his special brands for goods of second or third rate quality, but in each case, in order to permanently succeed, the goods must be as represented, and the same laws of trade, common honesty and business success apply to both the jobber and the manufacturer.

ENTRÉE OF CATALOGUE HOUSE.

The rapid increase in the demand by jobbers for special brands has come largely from the fact that the manufacturer has been too willing to put his goods, including his regular factory brands, into the hands of the catalogue house. When this was done the jobber as also the retail dealer, has seen his margin of profit dwindle steadily away, and the inducement to sell these goods has correspondingly decreased. In this emergency the jobber has adopted the special brand, which he controls and on which he can hold a jobber's profit. He says to the retail dealer: "Take my special brand goods; push their sale. I will guarantee you will have no catalogue house or even department store competition on them." If the retail merchant has confidence in his jobber, can you conceive of a stronger inducement for the order to go to him, or, on the other hand, for the jobber to see that he furnishes goods up to his representations? Under these conditions it is no cause for wonder that the sale of the jobber's special brands increases and that the demand for the factory brands correspondingly decreases.

REASONS FOR JOBBERS' BRANDS.

Another factor in favor of the jobber with his special brands is that when he desires he can give to the retail dealer the exclusive sale of his goods under his brand. Every merchant in a town can handle a saw or a file under the factory brand, and thus in the competition that follows the selling price to the consumer may be and generally is steadily reduced, till it frequently reaches a point at which it yields no profit, and sometimes does not even pay the expense of doing business. The jobber with his "Sunrise Saw" and his "Sunset File" can say to his customer: "Take this Saw or this File of mine, build up a trade on it and I will see that you enjoy the market on it which you have created." Another factor in favor of private brands is that by availing himself of the separate and distinct advantages offered by the several manufacturers of any line of goods the jobber can assemble under his brand the different patterns to make up that line at a reduced cost and also with a marked improvement in his assortment of patterns. For instance, any one conversant with the Cutlery trade realizes the value of this help and its influence in extending to other lines as trade conditions steadily grow more complex and interlinked. Some Hardware jobbers are now offering varied attractive assortments of Mechanics' Tools under special brands, these assortments running through a full line and being offered generally to one house in a town, to which the exclusive sale is given. In this way competition with catalogue houses, department stores, as well as other local competition, is eliminated. We can readily see that in the assembling of these goods under one special brand probably a score of manufacturers have contributed a part, and in this way advantages have been secured that cannot but prove attractive.

ADVANTAGES OFFERED BY JOBBERS.

The jobber who is able to order in liberal quantities, and to anticipate his requirements ample time in advance of his wants, and who will accept shipments at the convenience of the manufacturer, certainly can offer him a very desirable business. From the nature of the case the benefit of special brands must necessarily come in largest measure to the house that can offer these advantages. It has been one of the elements of weakness among manufacturers that they have been too willing to accept small orders for special brands of goods. These orders sometimes come from a large house, sometimes from a smaller one, and it has been understood sometimes coming even from a retail house. It will not do to charge such gross abuses as these to special brands, nor on account of such abuses should they be condemned. These evils are easily subject to proper regulations when manufacturers are willing to undertake it.

MUTUAL RESPONSIBILITY.

On goods that are not designed as first quality we see no reason why the jobber cannot push his special brand with satisfaction to himself, to the manufacturer and also to the retail dealer. The jobber can look to his manufacturer for the quality of the goods as represented, and in turn the retail dealer can look to the jobber, and our experience and observation go to show that the jobber stands as squarely behind his goods of the different classes going out under his brands as does the manufacturer on his brands.

SPECIAL BRANDS HERE TO STAY.

Special brands have come to stay and we believe will grow stronger as the years go by. In our view they are to be a powerful factor in the evolution of trade. We not only believe they cannot now be eliminated, but we also agree with a prominent manufacturer who, in a late article in one of the trade papers, states as a fact that manufacturers do not wish to see special brands eliminated. We believe it is to the advantage of the manufacturer, and also to the retail trade, as well as for the jobber, for special brands to continue; that there is an important place for them in the conduct of trade, and that the interests of all concerned will be promoted by devoting their energies wholly toward eliminating the abuses that have crept in.

SPECIAL BRANDS DO NOT AFFECT ALL MANUFACTURERS ALIKE.

It is to be taken into account that the use of special brands does not affect all manufacturers alike. Some manufacturers are doubtless benefited by them; other manufacturers may receive little or no benefit from them. It is possible that some manufacturers have suffered from their use. We believe that in but few cases this loss resulted necessarily. But even if this were to be the occasional result it would not be reasonable or satisfactory on this account to condemn the system. No important changes can come into the distribution of goods or into the conduct of business without working disturb-

ances and, perhaps, injury to some one. But we submit that the loss that must necessarily result from this cause to manufacturers here and there does not extend to such a degree as to prejudice the system.

The abuses that have grown up in the system should be disclosed and cured. None is beyond remedy. In the curing of these abuses the manufacturer, jobber and retail dealer all have a vital interest, and we believe each will do his part. We commend this very important work to every manufacturer, and we assure you that in your efforts in this direction you will have the hearty co-operation of every jobber who is a real friend of special brands and who can expect successfully to use them.

ADDRESS OF F. E. MUZZY OF THE J. STEVENS ARMS & TOOL COMPANY.

A friend of mine has a new Tonneau that he christened Willie, and when he starts on a trip he says, either mentally or orally, "Will he go or will he not?" With private brands it is entirely with the manufacturer, and it is for him to decide will he brand or will he not. This subject is so broad, and so many reasons can be brought forward both pro and con, that in the brief time allotted I cannot do the subject justice. I trust you will pardon the rapid delivery in order to cover as much ground as possible in so short a time. The manufacturer is almost wholly responsible for present conditions, and I believe I am safe in saying that Axe, Shovel and Pocket Knife makers are more to be blamed for existing conditions than any other line of Hardware manufacturers. Among the first special brand goods to be sold by the Hardware jobber was an Axe, all because Mr. Lippincott himself told a bright young jobber he could not run his store without Lippincott Axes. This jobber at once decided to have an Axe that no manufacturer could taunt him about buying, and from this Axe sprang a full line of branded goods that command the respect of every honest retailer, jobber and manufacturer. Can you expect jobbers to push factory brands when a manufacturer will do as Axe makers have in the past—represent to the jobber that they will sell the same quality Axe under private brands 50 cents to \$1 less a dozen than under factory brands, and guarantee the same.

SOME EXAMPLES.

A reliable buyer for one of the largest jobbers in the country told me some ten years ago that a well-known popular brand of Hand Saws he was obliged to sell under factory brand at \$13.50 per dozen did not bear a profit to cover expenses; that he was buying under his own brand a more highly finished Saw that he could job at \$12 per dozen at a very satisfactory profit, and a salesman representing this Saw factory guaranteed the buyer the quality of the Saws to be the same; in fact, both were the same blanks and received the same treatment, the only difference being in the higher finish of the jobber's brand. I could cite hundreds of similar cases, but the two above suffice. Can you blame the jobber for buying private brands?

FACTORY BRANDS OFTEN AT COST.

Again, factory brands are put on the market with an open selling price, or a margin of profit that will not show a percentage equal to the cost of doing business. All jobbers' salesmen will sell well-known, unrestricted factory brands at practically cost to influence the sale of other goods; hence the jobber is forced to have private brands on which he can average up his profits.

SOME OBSERVATIONS ON RESTRICTED PRICES.

Seventy-five per cent. of the jobbers are heartily in favor of manufacturers placing restricted selling prices on their goods, if they will only see that prices are absolutely maintained. The manufacturer asks the jobber if he will kindly hold to such a price, and the jobber at once kindly cuts the same. The manufacturers allow the jobbers to meet competition, and the headstrong salesman meets it the first order he sells and every one thereafter.

I know a factory salesman who presented a contract to the jobber to sign in regard to holding prices, and the jobber signed it and replied to the salesman: "You do not expect me to live up to this; all of my competitors cut and I will have to." The salesman mildly remonstrated, sent the contract to the factory. The jobber continued to cut prices, as did all his competitors, and the goods were sold at practically cost. This applies to a majority of restricted goods, hence the jobber looks with suspicion on restricted prices, and unless the manufacturer holds the jobber with an iron rein and does not hesitate to cut off the jobber who does cut prices, and, if need be, spend money to keep him out of goods, the jobber will not respect arbitrary prices.

PRICE MAINTENANCE; GREAT EXPENSE AND ETERNAL VIGILANCE.

Price maintenance means a heavy expense and eternal vigilance on the part of the manufacturer, for it seems to be born in some salesmen to cut prices. I could never understand why the jobber would belittle himself trying to defend his travelers, but these are the conditions and must be met. Unless a manufacturer is willing to spend time and money to protect his prices and cut off the jobber's supply when he cuts prices, no matter how large or strong the jobber may be, and protect to the letter those who give him their co-operation, he best not attempt regulating the jobbers' prices, for it means trouble and annoyance, and it is for the manufacturer to decide whether to him it is worth the effort. Manufacturers should either hold the jobber absolutely to the line, else permit him to sell goods unrestricted. It is far worse for the manufacturer and the jobber to place arbitrary prices for the jobber to sell his goods at and not maintain them to the letter, than it is to allow the jobber to sell them unrestricted.

VALUE OF AN ESTABLISHED REPUTATION.

Every manufacturer knows the value of an established reputation for a high grade of goods. Too many American manufacturers are over anxious for business, and in order to run their factory to its full capacity will make any quality, any brand, not realizing that without an established reputation on their own goods it is a matter of price only that brings them business. A little factory can start up anywhere, and with cheap labor—possibly Chinese labor—get business. He is not building for the future, but rather on sand, and he never knows when the storms of competition will wash him out of existence. If a manufacturer is making a high, or even a good, quality of goods by all means use factory brands, which in later years will be a valuable asset in business, and after the goods are established will sell themselves at a price satisfactory to the manufacturer.

REPUTATION WITH CASH EQUIVALENTS.

I have been told that the retail agency for the Dunlap hat was worth \$1000 in a certain city of 60,000 people in New England, and was figured as one of their assets. When they sold out the agency was transferred the same as though it was one of the fixtures. I was also told that the agency in the city of Chicago was worth \$25,000. If so, what must be the value of the Dunlap trademark to the manufacturer? A \$5 derby hat branded "Dunlap" sells readily without comment. Remove the trade-mark, or offer it under private brand, and it would require more than the ability of the average salesman to sell this identical hat, even at a 20 per cent. lower price. Who ever heard of a Dunlap, Knox or Stetson hat being sold under private brands? I never heard of a Hardware jobber demanding or even requesting special brands on Ames Shovels or Wostenholm Knives, two lines that are sold under private brands as extensively as anything sold in the Hardware stores.

ANENT HAMMERS.

I could name a line of Hammers sold in 75 per cent. of the retail Hardware stores in the United States under factory brand and called for by carpenters, artisans and farmers, and another line more extensive and equally as good, made at a much larger factory, that is comparatively unknown, as far as the maker is concerned. I never heard of a consumer asking for the second named maker's Hammer under the factory brand, and yet he probably turns out two to one as many Hammers—that is, Nail Hammers, as they are commonly termed, as does the first quoted maker; yet one has a valuable asset that no competitor can take away; the other can hold his trade on price alone.

PRIVATE BRANDS ABROAD.

I have often heard that private brands were not sold extensively abroad, and for the reason that the European jobber has not the control of his salesmen the American jobber has, and is largely at the traveler's mercy. In talking with one of the largest and wealthiest Hardware jobbers in Birmingham I learned that he could not get his salesmen to sell new lines, such as Sewing Machines, Guns, &c., as does nearly every up to date jobber in this country. A Wolverhampton jobber, more aggressive than the others, in order to introduce Sewing Machines, had an American salesman go over the trip with his travelers and get them started. I have seen very few private brands in Great Britain or on the Continent, but I did see some American factory representatives trying to enthrone some of the larger dealers on special brands, which was beyond my understanding, when at home they were decrying the evil, yet were trying to popularize it in a country where it was comparatively unknown. I think this proves conclusively that the manufacturer not only

caters to private brands at home, but is trying to introduce this custom abroad. The jobber at home has perfect control of his salesmen. They are instructed to sell certain lines of goods, and if the private brands are more profitable, the jobber's salesmen will always give them preference, for nearly all travelers' salaries are based on the profit they make the house they represent, and the jobber shows to his salesmen that it is more profitable for him to sell one line of goods than another. The salesmen naturally push the profitable line for it benefits them as well as their employers.

QUALITY IN PRIVATE BRAND AN UNKNOWN QUANTITY.

The quality of a private brand is an unknown quantity. Some are par excellent, others devoid of all merit. Manufacturers' brands, as a rule, are of a high quality, or at least the best they know how to produce, and if they are building a business for the future they must depend on factory brands, and of a high grade, as private brands mean temporary trade only. A factory may make a second or third quality under private brands, or possibly a brand known as the factory's second, on which the maker's name does not appear.

SOME ELEMENTS OF PERMANENT BUSINESS.

If a Pocket Knife maker would establish a reputation for his goods as did George Wostenholm, make his goods of the very best quality and place a fixed selling price on the same that would bear the jobber as satisfactory a profit as he could obtain on a private brand and create a demand for the goods, either by advertising or solicitation, in due time the Pocket Knife maker would have established permanent business that would be the envy of all his competitors, and later his policy would be imitated. This would take time, and too many manufacturers instead of looking into the future figure on the present, or rather quick returns. If a cutler of the United States had established a reputation he could and should have on his own brand of Pocket Knives, he would not fear free trade, as do the private brand makers to-day; for without protection he could hardly exist.

CONTROLLING REASONS WITH JOBBERS.

The jobber is not running his business to build up reputation on factory brands, but his prime object is to make money. He may offer hundreds of reasons for pushing private brands, but every one simmered down shows it is because it pays better to do so. Just as long as present conditions exist, just so long will Mr. Jobber push his own brand, not because he loves the manufacturer less, but the dollars more. No one is foolish enough to imagine for an instant that any successful jobber would suffer the delays and inconveniences caused by private brands if it was not profitable to do so. Then is it not up to the manufacturer to so place his line before his customers that it will be more profitable and satisfactory than private brands? And until this is done jobbers and dealers will request private brands—in fact, be forced to buy them.

RETAILER MUST BE PROTECTED.

As the retailer is the jobber's distributor, it is most important that he, the retailer, be protected, and it is for the manufacturer to so do, against catalogue houses advertising factory brands at a price he cannot meet with profit to himself, else he, too, will be forced to push the sale of similar goods that bear him a reasonable profit. Different manufacturers would be obliged to work on radically different lines, but the result would be the same, and every manufacturer must work out his own salvation. The consensus of opinion proves that a large majority of the retail dealers prefer factory brands. The jobbers would, if they could make as good a profit thereon. If the manufacturers who are not ashamed of the quality of goods they are producing would bring about this change, as it is in their power to do, they would eventually eliminate private brands, and would feel that the millennium had come, and the retailers, jobbers and manufacturers all would wear one of those "smiles that won't come off."

REMARKS OF H. H. BISHOP OF THE McINTOSH HARDWARE CORPORATION.

Some of the ideas advocated by some of the manufacturers who had taken the floor upon this subject are strictly in accord with the views held by the National Hardware Association relative to the profit to be obtained and the method of obtaining it upon manufacturers' or factory brands. It is a pleasure to me to see that there are manufacturers in this room who realize that their responsibility relative to the marketing of goods does not end when they have made their sale to the jobbing customer—that they have a responsibility of assuring his making a profit. I believe that their responsibility extends even further than that—that there is

a responsibility upon the manufacturer that he shall assure the retailer also a satisfactory profit. Whether that is a possibility at the present time is open to very much argument. That it is possible to assure to the jobber a satisfactory margin is within the range of possibility, and the machinery for it is ready for your hands. As I have before stated, the National Hardware Association have pronounced views upon this subject. They stand ready at any moment to communicate these views to any manufacturer who may be interested. It would please them very much, I am sure, if the American Hardware Manufacturers' Association, for whom they have the greatest respect, would see fit to appoint a committee from their body to confer with the Executive Committee of our association relative to plans that will have this object in view.

REMARKS OF W. P. BOGARDUS, PRESIDENT OF THE NATIONAL RETAIL HARDWARE DEALERS' ASSOCIATION.

This question is not up to us as it is up to you, and the manufacturer and the jobber. Of course, we want something that the people want. We have got to sell the goods that the people call for. If the brands of the manufacturers are well known all over the country the people will call for them. We cannot afford to spend our lives working up special brands simply because they are special brands. If the manufacturer, after long years of faithful effort, gives us first-class goods and our customers want them those are the goods that we want. We hope that the manufacturer will remember that we cannot sell them unless we can get a profit on them—we have no inducement to sell them. We want to stand behind the goods. We want to say that to our customers. We feel we can say that to our customers on makers' brands. We are not always sure that we can say that on special brands.

[THE LABOR PROBLEM—ONE OF EDUCATION.

BY HON. D. M. PARRY, INDIANAPOLIS, IND.

We have fallen on singular times. Axioms are no longer operative. Natural laws, supposed to be unalterable, are bending to the requirements of theories. Twice two is no longer four, and things fall up instead of down. Supply and demand is an invention of capitalists for purposes of oppression, and individual liberty is fairy lore designed to lead astray the fancy of the workingman. This Republic of ours is only a fabric of the "money kings" erected for their own selfish ends. Labor is not free, but manacled, urged to its tasks by the lash of heartless masters. God no longer reigns, and the Government at Washington is run by the plutocrats.

LABOR LITERATURE.

I know all this is true, for I have been reading the speeches of agitators and the expressions of labor newspapers. Another mental excursion of this sort and I shall pursue my daily walk in a spirit of utter pessimism. I shall lose faith in my fellow man and all his institutions. I shall flout the lessons of civilization and the teachings of the Church and lift my hand against my brethren. Take a course in labor literature, run through the files of its newspapers, examine its propaganda and cease to wonder at strikes and deeds of violence. Nearly all industrial disturbances, such as strikes and lockouts, may be traced, in a final analysis, to a misunderstanding between the employer and employee. Taken individually, men are reasonable beings, and disposed at heart to do the fair thing. Man to man, employer and employee could not hold irreconcilable differences. Talking man with man they could quickly come to an understanding and find that their mutual interests are identical.

TEACHINGS OF TRADE UNIONISM.

What, then, is the trouble? I can give it in a word—the teachings of trades unionism. By its fruits you may know it. Leaving out of the question the right of men to organize, which no one denies, let us see what labor unions have come to stand for.

In their earlier growth in this country labor organizations had the sympathy of the public. Every effort of the workingman to "better his condition," as the phrase went, was encouraged. Organized labor was petted and coddled until it began to believe it was about the only factor in the industrial world worth thinking about. Justifiable pride in the dignity of its calling developed into a bit of bumptiousness. The country assumed that its purposes were sensible and worthy. It believed that the mission of unionism would mean greater intelligence and efficiency among its members, and because of this increased intelligence and efficiency a higher scale of wages. The natural supposition was that organization

meant mutual improvement and greater skill among the members. I shall be charitable and assume that these worthy aims were the motives of the first organizers in this country. But with increased power came abuses. Selfish leadership saw its opportunity. It would not rule by reason—it desired to rule by force. It won victories. It caught the individual employer unprepared. His concessions were answered by demands more and more unreasonable. He was confronted with a situation that threatened disastrous consequences. He saw others ignorant and unscrupulous in complete possession of his business. These evils grew by what they fed upon. The victories of organized labor attracted to its ranks the idle, the vicious and the incompetent. It ceased to stand for efficiency; it became a sheer aggregation of muscle. Fitness was no longer a requirement for membership, but only the physical power to hurl a brick. Organized labor had become organized violence.

ARRAYING CLASS AGAINST CLASS.

Still the public was patient. It had not yet separated in its mind the labor organization from the individual workingman whom it respected and toward whom it was kindly disposed. But the public patience was to be further tested. Reckless leadership went on in its programme. It bullied the conservative membership in its own ranks and inflamed the passions of its ignorant following. It filled the minds of workingmen with hostility toward employers, and held up before them visions of a new and ideal social state that was to result from strange and ridiculous economic theories. Finally, and worst of all, it tried to establish in the minds of workmen the dangerous distinction of classes—the capitalist, who oppresses, and the wage earner, who is a slave. For the conservative membership labor leaders had intimidation; for the envious and thriftless they had cupidity; for the vicious, the appeal of hate. For examples of pure, despotic government go to most of our labor unions. There is no tyranny like that of ignorance suddenly elevated to power.

HUNG WITH ITS OWN ROPE.

But all evils carry their own remedy. Reckless leadership had rope and it hanged itself. Coercion went one step too far. The employer, driven to the limit of tolerance, turned. The manufacturers of the country were forced to organize for self defense—self defense, pure and simple. And that is the attitude they occupy to-day. Individually, there may be some whose conduct toward those they employ is open to severe criticism, but I do affirm that employers as a class in this country wish to see their employees prosperous and contented, and never for a moment have they entertained the notion of "crushing labor." Crushing labor! The idea is so preposterous that it could have originated only in the minds of those irresponsible agitators and leaders who live by strife, and whose occupation would disappear with the establishment of industrial peace.

EDUCATION AND SOBER SECOND THOUGHT.

But self defense implies warfare. Industrial peace cannot be established by employer and employee standing on guard one against the other. Influences must be set in motion that will be permanently corrective. Remedies must be applied that will reach the seat of the disease. As I have intimated, misunderstanding of motives and misconception of the eternal laws back of all industrial progress are largely responsible for our present troubles. Our main reliance, therefore, must be education. This is the great work that must be undertaken by the employers of the country. The plan may seem slow, but it will be sure and lasting in its results. Education must lay the broad and deep foundations on which industrial society can build with confidence. There is no better time for beginning this work than the present. The organized opposition of the Manufacturers' Association and of the various bodies of the Citizens' Industrial Alliance has served to make organized labor pause and think. Its hitherto unchecked and lawless march has been forced to halt. Discontent is springing up in organized labor's own ranks and the membership is falling away. Sober minded workmen are beginning to see that force methods cannot avail and that organized labor has been built upon a wrong principle—the principle of hostility instead of mutual helpfulness.

FALSE TEACHINGS.

The employers of the country, large and small, must set to work unitedly to correct the peculiar fallacies that organized labor has conceived of economic laws. By their negligence and lack of co-operation employers have been partly responsible for these conditions. From the very inception of organized labor they have permitted agitators to preach the doctrine of hate and destruction without contradiction. Labor unions have become so many forums in which the gospel of confiscation, law de-

fiance and disrespect for all authority have been preached. Here have the peculiar economic notions of agitators been promulgated; here men have learned to do as little work for their pay as they can. They have been taught that the employer is a slave driver whose wishes are to be regarded with suspicion, if not openly resisted; that there is just so much work to be done in the world and that a too willing industry on the part of one man may deprive another of the opportunity to labor; that the demand for and the consumption of products remains a fixed quantity, requiring the restriction of output in order that the members of organized labor may be kept at work; that the shop must be closed to independent workmen; that the line of distinction between the capitalist and laboring man is rigidly fixed and the laboring man cannot cross it; that the police and courts of law are but the machinery set in motion by capitalists to keep labor in subjection; that the militia are armed through the "money power" to overawe labor; that labor produces all things and is being robbed of the profit, and, finally, that we must have an entirely new economic system before labor can "break its chains."

NEGLECT AND INDIFFERENCE OF MANUFACTURERS.

Does not all this constitute a ridiculous philosophy? You wonder that sane and sensible men could be induced to accept it? Then remember that organized labor has preached such doctrines year after year and you, employers and manufacturers, have treated the matter with indifference. Organized lawlessness has continued to disseminate its fallacies and you did not lift your voice even in protest until the natural results of such preaching manifested themselves in scenes of violence. The tone of American citizenship has been lowered, the very principles on which this Government was founded have been scouted and treason itself has stalked up and down the length and breadth of the land. The work of education will not be easy nor is it a work that can be undertaken spasmodically. It must be carried on soberly, calmly, but without cessation. You and I may not live to see its final fruits, but that it will grow at last into full fruition is as certain as that truth and right are stronger than error and wrong.

DISSECTING AND ANALYZING ORGANIZED LABOR'S DOCTRINES.

To more fully comprehend the nature of the task before us let us examine some of the results of organized labor's teachings. On the very threshold of our work we are confronted with the spirit of prejudice and hostility. Employers are regarded as enemies. Labor leaders have been shrewd. They saw that no influence could maintain the alignment of their forces like that of hate. It closes the mind to reason. It sees behind every friendly advance some dark or ulterior motive. Attend some labor meeting and prove my words. The employer's name is mentioned with bitterness and to him are imputed the possession of all unworthy motives. "Don't listen to him" is the attitude. To foster the spirit of hostility has been the aim of labor leaders and demagogues that attach themselves to the union to show that labor has been badly abused. Isolated instances of rapacious greed and other evils in our political and social system (for no human institution is perfect) have been made applicable to our whole industrial system. Take up most of the four or five hundred labor papers in this country and you will find paragraph after paragraph of the most hopeless and distressing sort. I quote:

A FEW NUGGETS.*

"One of two things must happen in this country. There will be a set of castles and lords on the one hand and hovels and slaves on the other, or else the common people will come together and assert their rights and be free for evermore."

"Wouldn't it seem funny for the President to appoint just one workingman to the Cabinet? The workers are treated as so many cattle. They are not supposed to have enough sense to fill any position except dog pelter."

"The scope of the Constitution was never intended to oppress the great body of the people and protect and enhance the fortunes of the few."

"When freedom of action is restrained and the laborer becomes a machine, governed by a timepiece, it is folly to talk of either labor or the laborer being noble and holy."

DESPICABLE METHODS OF THE PROFESSIONAL AGITATOR.

What is the natural result of such teachings? Take any man, I care not how comfortable may be his condition in life, and pour into his ears day after day stories of ill treatment and he will come at last to believe them himself. He will become bitter toward the world and all his fellow men and finally come to rest in the belief that all mankind is in a conspiracy to work his ruin. If such a fate can befall an individual, how much more

pernicious is the doctrine of misfortune when taught in an organized body, whose inclination in considering grievances is to magnify them.

OUTCROPPINGS TRACEABLE TO VICIOUS LABOR AGITATION.

It is a lamentable fact that this spirit of hostility between the employer and the employee permeates almost every condition of life. You come in contact with it in your homes, where those you have employed to help you grudgingly obey your instructions or constantly assert in manner, if not by word, that they are "just as good as you are," a question that you have not attempted to raise. You meet it in the shop where employees take little interest in their work and drop their tools on the strike of the hour. I charge present day unionism with the responsibility for these conditions. Organized labor has drawn the class line and erected a barrier against the employee rising to places of responsibility and trust in the business in which he is engaged. A spirit of co-operation with the employer, a personal interest in the business on the part of the employee, have no room to develop. No incentive spurs on the employee, he continues to work year after year for the wage fixed by the "scale" and then becomes ready in his old age to demonstrate by the illustration of his own life that the workingman as against the capitalist has no chance. Instead of benefiting him, the union has dwarfed his powers and left him in his old days "naked to his enemies." To sweep away this spirit of hostility of the employee toward the employer is one of the most difficult things our work of education has to encounter.

THE FOOL'S PARADISE.

The negligence and indifference of employers have been in part responsible for the growth of wild economic ideas. Well established principles of social economy are lightly brushed aside. Artificial methods for raising wages have been substituted. To beat an employer with a club until he purchases immunity is an economic law so plain that even the dullest mind can understand it. The bigger the club, the higher the wages; what could be more simple? The more men organize, the less the employer's power of resistance and the greater the gain to unionism. Let every employee come in and share in the blessed results of this latter day economy. For a certain contribution of muscle you get a certain wage. Superior physical prowess, backed by a dearth of conscience and a reckless regard of consequences, entitles you to leadership—another benefit of the modern economic law.

PLAUSIBLE FALLACIES.

One of the most absurd principles of the new political economy is that the employer can raise wages at will. Labor is taught that the employer, by some occult process known to the capitalist mind, draws to himself all the products of its toil and will give up his ill gotten gains only as he is compelled to do so by physical force. The flat method of acquiring wealth can be made so plausible that very intelligent people are often caught by it, and in many labor unions it has become a cardinal principle. The desire to get rich quickly has little patience with the rigid fact that there is no royal road to wealth. The result of this teaching is that members of labor organizations depend less and less on their own thrift and industry for acquiring a competence and lean too much on their union. Gradually losing sight of the necessity for individual effort, they underestimate the potency of small savings and let fall from them their habits of thrift. When they want more money they will simply go to their employer and demand it.

INEXORABLE LAW OF SUPPLY AND DEMAND.

The truth is, of course, that neither the employer nor employee can affect the rate of wages except in a slight degree, and never permanently. Quibble as you will, the law of supply and demand remains. It is irrevocable and inevitable. Brush it aside and it will swing back to remand you of your folly in a way that you will not forget. The welfare of labor cannot be advanced by physical strife. Economic laws are not subject to the swing of the bludgeon. They are beyond the power of men to alter. The production per capita fixes the rate of wages. If the average amount of product per man is high, wages will be high. The reverse of this proposition is also true. Greater production means greater consumption, because of the natural fall of prices and the greater employment of labor to supply the increased demand.

RELiance ON FALSE PREMISES.

Trades unionism of the present day rests upon the assumption that wages can be raised artificially. That theory is its corner stone. The membership, if you will, is held together by this "cohesive power of public plunder." To obtain higher wages by force is the very reason of its being. It recognizes the power of numbers, and not the power of intelligence and efficiency. But back of this

main tenet are other fallacious theories which are necessary deductions from the first and prime false assumption, for when men attempt to set aside plain economic truth to carry out their desires there is no limit to the absurdities they will preach.

ROBBING PETER TO PAY PAUL.

Organized labor, for instance, rests under the delusion that when higher wages are secured through threats or intimidation society is benefited, because the oppressive employer has been compelled to distribute some of his booty and the buying power of labor has been increased. The preachers of false economy disregard the fact that capital does not pay the increase, but the general public, which is largely constituted of labor itself. Labor but takes the money out of one of its pockets and puts it in another. Higher wages that call for higher prices for products is not a condition that makes for the benefit of either labor or the general welfare.

QUICKSAND FOUNDATIONS.

There are many other theories which, put in practice, aim at individual liberty, and which, if allowed to go on, will work great harm, if not destruction, to our institutions. Every failure of organized labor to carry out its wishes in the face of economic laws only calls for other absurd methods of procedure to bolster up and sustain a fabric that rests upon false assumptions. We have, therefore, the desperate remedies of restricting output and of limiting the number of apprentices, both aimed to establish a despotism of trades unionism. Organized labor says that no workman shall carry his industry beyond a certain point—he shall labor only so many hours and he shall do only a certain amount of work. The dullest man's accomplishments become the standard of all. Young men shall not be permitted to learn a trade unless they first obtain permission from union labor. Think of it! Their right to live given over to another's caprice! Do you wonder that the juvenile courts are filled and that the problem of the idle young presses with ever increasing force upon the attention of our municipal authorities? How hypocritical, in the face of this policy, becomes the pretense of organized labor that it is engaged in the work of uplifting humanity.

THE CLOSED SHOP CLUB.

Another policy that is aimed to establish the rule of unionism in our own industries is that of the closed shop. Its general adoption throughout the country would mean the destruction of individual liberty. No workman could obtain employment until he consented to conditions that, as a free man, he would not be legally required to conform to. Before exercising his possession of liberty, guaranteed him under our free institutions, he must bow to other authority. His liberty is abridged. No labor union has a right to say that a man shall or shall not work, nor does it have the power to say so unless it is stronger than the Government, which says he can work for whom he will and at whatever price he sees fit. If organized labor says that an employer shall give employment to only union men, then the employer can say to union labor that it can work for no one else. Either proposition is intolerable slavery. The movement of organized labor for the closed shop was a bold one. Many of labor's friends could scarcely credit it until all disguise was thrown off. That the policy is aimed at individual liberty is so plain that the public cannot be deceived. A simple statement of its character is sufficient to bring down upon it the condemnation of the entire country.

A SPOKE IN THE SOCIALISTIC WHEEL.

Having hastily sketched the situation, let us see what is being done to meet it and what is yet to be done. A few years ago the members of the National Association of Manufacturers, which had been working principally along the lines of increasing our export trade, awakened to the fact that something had to be done to meet the aggressions of organized labor or hand over to it the control of their businesses. Industrial freedom was in the balance. It was, to my mind, a critical time in the history of the country. Organized labor had thrown off all disguise and revealed its socialistic features. It was regarded as a foregone conclusion that the eight-hour bill would be passed by Congress and other measures tending to usher in a socialistic form of Government would be presented. The new movement on the part of the manufacturers met with instant encouragement from all parts of the country, showing how badly the need of it was felt. Within a year after the Indianapolis convention the Manufacturers' Association had increased its membership by over 1000, and the same rate of growth marked the years that have followed. The protest made by the association against the lawless and socialistic methods of organized labor had an instant and salutary effect. Employers all over the country took courage and public sentiment began boldly to express itself against trades unionism. The press of the country, hitherto supporting the unions or

lukewarm in their criticisms of them, began to expose their folly and recklessness. The change in the tone of the press was instantly reflected in the attitude of public men, who, backed by the good citizenship of the country, openly resented the dictation of labor bosses. The forces that were assaulting the very citadels of industrial freedom had received a check.

SPREAD OF ORGANIZED RESISTANCE TO AN INDUSTRIAL PALSY.

The subject of a more extended organization was brought to the attention of employers and independent citizenship. It was felt that there were local conditions in the communities throughout the country which only local organizations could meet—organizations composed of employers in all lines of industry instead of an association composed exclusively of manufacturers. The Citizens' Industrial Association was born. The National Association of Manufacturers and the Citizens' Industrial Association, therefore, stand in a close and friendly relation. Both organizations are working along the same general lines and are one in the purpose of fighting for industrial freedom. In the work of organization before us the bonds between the two organizations should be made as close as possible in order that there shall be no waste of effort.

PROGRESS OF INDUSTRIAL LIBERTY.

Since the awakening of employers and good citizenship throughout the country the cause of industrial liberty has made great progress. Strike after strike has failed and the open shop has taken the place of the closed one. Thugs who were accustomed to beating non-union men with impunity have been prosecuted and justly dealt with. Many towns have been redeemed from lawless unionism through the Citizens' Industrial Association. Those paternalistic measures—the eight hour and the anti-injunction bills—have been defeated and the proclamation has gone forth, never to be withdrawn, that every man under the folds of our flag shall have the right to work when he pleases, for whom he pleases and in accordance with any contract he may choose to make.

Now, as to the work that lies before us: The organized employers of the country have accomplished much, but it has been of a defensive character. A lull between standing armies is not peace. The assailants must be disarmed—not by forcible measures, but by peaceful ones. They must be led to understand that those whom they assail are not their enemies, but their friends, and that the blows aimed at our present industrial order are blows aimed at their own liberties.

THE GOLDEN RULE.

To this work of education every employer in this country must give his attention. Every good citizen, be he employer or employee, must lend his aid to this cause. The task is one to call forth all our energies. The National Association of Manufacturers has done much good in influencing public opinion in a general way and in directly making known to Congress the sentiment of the public at large on certain questions. The Citizens' Industrial Association can meet the requirements of local conditions and build up through all its branches a healthy sentiment for law and order and industrial peace. So I appeal to you, members of the American Hardware Manufacturers' Association, to unite in this organized effort. The doctrines of false teachers must be corrected.

PRACTICAL SUGGESTIONS.

Let me present you a few suggestions in regard to this work of education: In the first place, it has become an essential part of your business. Do not entertain the impression that it is entirely extraneous and to be carried on by others with more leisure and greater aptitude. To not a few of you, perhaps, the question has come home in a way that you cannot disregard. You have seen the freedom of your thought and action menaced, your right to plan unhindered taken away from you. The instability of your workmen and alien interference have become factors that you must reckon with in calculating the profits of your enterprise. The work of education foreign to your business? I reiterate, education has become a component part of it. From purely selfish motives, if from no other, you must give your support to this cause.

TREND OF TRADE UNIONISM TOWARD SOCIALISM.

Again, the work of education is a patriotic undertaking. As organized labor sees its force methods defeated through the operation of the natural laws of trade it looks about for new means of accomplishing its willful purposes. It finds fault with the whole social system and takes to its bosom the wildest political theories. In a word, it would overthrow our present form of government. The natural trend of trades unionism at the present day is toward socialism. Mr. Debs, the Socialistic candidate for President, went over to socialism after his attempts to run the railroads of the country

failed. Mr. Donnelly of the Butchers' Union, disappointed in his attempts to control the packing industry, has followed Mr. Debs. Their action should really occasion no great surprise. They are only carrying out to their logical conclusion the fundamental principles of trades unionism. The closed shop is a socialistic form of government on a small scale, with the employer as the merely nominal head. And so it comes about that treason is essentially taught in our labor unions. The red flag elicits far more enthusiasm than the Stars and Stripes. Men prominent in the councils of the nation are spoken of with disrespect. Our precautions to preserve peace and order are accepted as obstacles placed in the way of organized labor. On what other theory can be explained the hostility of unionism toward the police and militia? Guardians of the peace are not going to hurt anybody with peaceful intentions. This hostility toward those sworn to execute the laws is a confession of hostility toward the present form of government.

SOCIALISTIC DOCTRINE FOR PERSONAL PROFIT.

Socialistic papers, some of them with large circulations, are disseminating the doctrine of discontent and calling for united action against our republican form of government. "As it is now," says one of them, "the working class is taxed \$800,000,000 each year to support the Government which the rich have instituted to protect their pilfered wealth."

NO JUDGMENTS THROUGH DEFAULT.

Can you wonder at the effect of these seditious doctrines when the lovers of this Republic are doing little or nothing to counteract their influence? Error will not die of itself. Every voter is a member of the great jury before which causes are tried. We must present our side of the case and not let judgment be taken by default. In this country, where every man is an essential unit in our governmental system, it matters a great deal how he thinks and feels. He can be depended on to do the right thing, the just thing, if he is put in possession of all the facts. To hold ourselves indifferent to the great questions arising in the industrial world is to convict ourselves of criminal negligence and show ourselves unworthy of all the great blessings this free Government has vouchsafed to us. If we love our country we must make some sacrifices in her behalf. We must make more secure the foundations on which our fathers builded.

"ETERNAL VIGILANCE THE PRICE OF LIBERTY."

The good citizens of this country must not be guilty of the folly of relaxing their efforts during quiescent periods. The past year, with the exception of the butchers' strike in Chicago and the Fall River troubles, has been comparatively free of labor disturbances. The present, therefore, is a good time to push the work of education. Men will not listen to reason when their minds are inflamed. The symptoms may not be so feverish, but the disease is in the blood and must be eradicated. The time is ripe for building up the great propaganda work. Let us take a lesson from the socialists themselves. Ben Hanford, their candidate for Vice-President, said during the recent campaign: "The best work and the most important work in the socialist movement is the kind of work that all can do. No matter what the things a comrade may be unable to do, each and every one of us can distribute literature, and that is the most important thing in our movement. Let each comrade see that his nearest neighbor has some socialist pamphlet, paper or leaflet. See that all the people in your tenement, all the people in your block, all the people in your city, all the people in your township, have something to read on the subject of socialism. Do not leave this work for some one else to do. Do it now. If you work in a factory see that every person in that factory has a socialistic leaflet at least once each week. If you belong to a trades union, see that every member has some socialist literature. See to it that at every meeting of your union every man is given a socialist paper or leaflet. Put your faith in print. Distribute socialist literature and you will get socialist results. Distribute socialist literature and we shall have socialism in our time." I say with him, "Put your faith in print!" Distribute literature in the interest of industrial freedom and you will get results for industrial freedom.

A VEHICLE FOR PROPAGATING AND DISSEMINATING SOUND IDEAS.

A beginning in the work of education that the employees of the country must undertake has been made. Some propaganda work has been done in the way of issuing pamphlets, but the influence of this method of education is limited. The establishment of a periodical which will be self supporting, but not profit making, becomes necessary. It must be made so cheap in price as to permit of the widest circulation among the employees of the coun-

try. There was issued last month from the president's office of the National Association of Manufacturers in Indianapolis a paper called the *Industrial Independent*, whose purpose is to disseminate sound economic doctrines, oppose organized lawlessness, socialism and anarchy, and advocate the cause of free and independent labor. It is worthy of the support of all employers and independent workmen everywhere. If the periodical receives the encouragement and support that it should, if it can be made profitable from a financial point of view, a great propaganda institution will be developed whose efforts in spreading the principles of industrial freedom will be vigorous and constant. It is not intended in this paper to assail labor, but only the illegitimate tendencies of trades unionism. It shall stand as the friend of the workman as a workman, freely giving its support to all sane and legitimate efforts to better his condition. It shall invite in its columns a free discussion of industrial conditions. It shall invite contributions from employer and employ alike, and will welcome suggestions from whatever source that tend to bring about a better understanding between employer and employee.

A COMMUNITY OF INTEREST.

I have endeavored in this brief paper to lay before you, in as concise and direct a way as I could, the nature of the work that now confronts the good citizenship of the country. It is a work that intimately concerns itself with the personal relationship existing between the employer and employee. Are they working in the spirit of unity, as they should, or is the attitude of the employee toward the employer one of hostility and suspicion? False teachings have borne much bitter fruit. It is for you and all employers everywhere to say whether the widening chasm between the employer and employee shall not be bridged, whether they shall not be led to see that the interest of one is the concern of all, and that in friendly co-operation and not in hostile division lies the highest prosperity for them both.

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- HERO FRUIT JAR Co., Philadelphia, Pa.: John L. Chapman.
- STANLEY RULE & LEVEL Co., New Britain, Conn.: A. W. Stanley, Robert N. Peck, Chas. N. Nichols.
- GRAFTON STONE Co., Elyria, Ohio: F. S. Miller.
- TOBIN ARMS MFG. Co., Norwich, Conn.: F. M. Tobin.
- TUBULAR RIVET & STEEL Co., Boston, Mass.: Wm. C. Bray.
- AMERICAN SHEAR & KNIFE Co., Hotchkissville, Conn.: H. S. Dormitzer.
- MCCAFFREY FILE Co., Philadelphia, Pa.: Hugh McCaffrey, Edward V. McCaffrey, Joseph J. McCaffrey, Hugh I. McCaffrey.
- BOMMER BROS., Brooklyn, N. Y.: Gustav Bommer.
- CLYDE CUTLERY Co., Clyde, Ohio: R. B. Jones.
- NEVER-SLIP MFG. Co., New Brunswick, N. J.: Wm. J. McCurdy.
- NATIONAL-ACME MFG. Co., Cleveland, Ohio: L. M. Waite.
- REYNOLDS WIRE Co., Dixon, Ill.: H. G. Reynolds, W. B. Merriman.
- SIMONDS MFG. Co., Fitchburg, Mass.: G. K. Simonds, Geo. T. Curtis, John E. Kelley.
- SARGENT & Co., New York: Geo. H. Sargent, Geo. F. Wilpert.
- HENRY DISSTON & SONS, Philadelphia: Samuel Disston, Harry C. Disston.
- WYOMING SHOVEL WORKS, Wyoming, Pa.: Henry Belin, Jr., Nathaniel G. Robertson.
- KEYSTONE LOCK WORKS, Lancaster, Pa.: E. T. Fraim.
- WADSWORTH-HOWLAND Co., Chicago, Ill.: W. A. Campbell.
- FINDLAY AXE & TOOL Co., Findlay, Ohio: M. T. Christopher.
- RUSSELL & ERWIN MFG. Co., New York: Howard S. Hart, B. A. Hawley, J. L. Clayton, J. H. Van Newkirk, W. E. Diehl, T. J. Usher.
- BRIDGEPORT CHAIN Co., Bridgeport, Conn.: W. B. Lashar.
- WM. VOGEL & BROS., Brooklyn, N. Y.: Louis H. Vogel, Will I. Sherwood.
- BAEDER, ADAMSON & Co., Philadelphia: Robert A. Mallon.
- BYDEN HORSE SHOE Co., Catasauqua, Pa.: George E. Holton.
- AMES SHOVEL & TOOL Co., Boston: Hobart Ames, C. H. Myers.
- RUSSELL JENNINGS MFG. Co., Deep River, Conn.: W. A. Bothwell.
- PECK, STOW & WILCOX Co., New York: W. R. Walkley, T. H. Gossett.
- AMERICAN SHEET & TIN PLATE Co., New York: Frank Dickerson.
- HUSSEY-BINNS SHOVEL Co., Pittsburgh, Pa.: George N. Willson, R. H. Binns, J. H. Martin, J. A. Grubb.
- THOMAS DEVLIN MFG. Co., Philadelphia: Thomas Devlin.
- ONEIDA COMMUNITY, LIMITED, Kenwood, N. Y.: A. M. Kinsley, M. E. Kinsley, P. B. Noyes.
- MANN EDGE TOOL Co., Lewiston, Pa.: Jos. R. Mann.
- J. C. PEARSON Co., Boston: F. C. Ayres, H. A. Jones.
- HURWOOD MFG. Co., Bridgeport, Conn.: J. L. Sperry.
- GARLAND NUT & RIVET Co., Pittsburgh, Pa.: Robert Garland, Alfred Sang.
- WALLINGFORD MFG. Co., Wallingford, Vt.: H. B. Barden, M. D. Whedon.
- DEMING Co., Salem, Ohio: Wm. L. Deming.
- CARNEGIE STEEL Co., Pittsburgh, Pa.: J. W. Brainard.
- GRAHAM NUT Co., Pittsburgh, Pa.: Chas. J. Graham.
- NATIONAL ENAMELING & STAMPING Co., Baltimore, Md.: W. H. Matthai, George H. Harper.
- WINCHESTER REPEATING ARMS Co., New Haven, Conn.: Irby Bennett.
- EXCELSIOR STEEL FURNACE Co., Chicago: A. W. Glessner.
- OSGOOD SCALE Co., Binghamton, N. Y.: O. J. Fowler.
- WESTERN BLOCK Co., Lockport, N. Y.: W. E. Thaw.
- BEALL BROS., Alton, Ill.: Ed. Beall.
- CHICAGO SCREW Co., Chicago: Fred. W. Fee.
- YOUNGSTOWN IRON SHEET & TUBE Co., Youngstown, Ohio: Geo. E. Day.
- H. M. MYERS Co., Beaver Falls, Pa.: Chas. S. Hubbard.
- SLIGO IRON WORKS, Pittsburgh: Omar S. Decker.
- WRIGHT SHOVEL Co., Anderson, Ind.: A. G. Sherman.
- CHANTRELL TOOL Co., Reading, Pa.: H. C. Shaaber.
- BOSTWICK STEEL LATH Co., Niles, Ohio: Wm. G. Hulbert.
- AMERICAN STEEL LATH Co., Allegheny, Pa.: J. W. Bowman.
- KEASBEY-MATTISON Co., Ambler, Pa.: H. V. Everham.
- MARLIN ARMS Co., New Haven, Conn.: Mahlon H. Marlin.
- MACK & Co., Rochester, N. Y.: A. P. Mack.
- MILLER LOCK Co., Philadelphia: Milton Jackson, Edward S. Jackson, C. E. Chalfont.
- JOHN H. GRAHAM & Co., New York: W. A. Graham, W. J. Lockwood.
- SURPLESS, DUNN & Co., New York: Oliver B. Surpless.
- WIER BROS., Baltimore, Md.: George P. Wier.
- A. W. BOND, Baltimore, Md.
- CHICAGO HARDWARE Co., Chicago: William J. Gold.
- BULLARD AUTOMATIC WRENCH Co., Providence, R. I.: Jno. L. Blaisdell.
- BOSS WASHING MACHINE Co., Cincinnati, Ohio: Conrad Dietz, E. L. Enneking.
- S. L. & G. H. ROGERS Co., Hartford, Conn.: Joseph Irons.

JOBBERS PRESENT.

MOORE & HANDLEY HARDWARE Co., Birmingham, Ala.: J. D. Moore.
 WIMBERLY & THOMAS HARDWARE Co., Birmingham, Ala.: C. E. Thomas.
 GRAY & DUDLEY HARDWARE Co., Birmingham, Ala.: W. C. Pollard.
 FONES BROS. HARDWARE Co., Little Rock, Ark.: Col. D. G. Fones.
 DUNHAM, CARRIGAN & HAYDEN Co., San Francisco, Cal.: Brace Hayden.
 GEO. TRITCH HARDWARE Co., Denver, Col.: Geo. Tritch, Jr., C. S. MERSICK & Co., New Haven, Conn.: Col. R. S. Woodruff.
 BRONSON & TOWNSEND Co., New Haven, Conn.: Jno. W. Townsend, W. A. Watts.
 F. P. MAY & Co., Washington, D. C.: F. P. May.
 PALMER HARDWARE Co., Savannah, Ga.: A. B. Palmer.
 TROUT HARDWARE Co., Chicago, Ill.: G. W. Trout.
 CLARK, QUIEN & MORSE, Peoria, Ill.: Chas. D. Clark.
 TENK HARDWARE Co., Quincy, Ill.: Rudolph Tenk.
 VAN CAMP HARDWARE & IRON Co., Indianapolis, Ind.: Cortland Van Camp, Sam'l G. Van Camp.
 POGUE, MILLER & Co., Richmond, Ind.: Geo. W. Miller.
 EMPKIE-SHUGART-HILL Co., Council Bluffs, Iowa: F. H. Hill.
 KNAPP & SPENCER Co., Sioux City, Iowa: C. A. Knapp, H. L. Spencer.
 DRAKE HARDWARE Co., Burlington, Iowa: C. E. Otto.
 HUBER & KALBACH Co., Oskaloosa, Iowa: V. E. Hamilton.
 CUTLER HARDWARE Co., Waterloo, Iowa: F. E. Cutler.
 W. A. L. THOMPSON HARDWARE Co., Topeka, Kan.: J. G. Bauer.
 HOCKADAY HARDWARE Co., Wichita, Kan.: F. R. Peck.
 BLISH, MISE & SILLIMAN HARDWARE Co., Salina, Kan.: J. G. Silliman.
 STRATTON & TERSTEGGE, Louisville, Ky.: H. Terstegge.
 STAUFFER, ESHELMAN & Co., New Orleans, La.: Col. B. F. Eshelman.
 EMERY-WATERHOUSE Co., Portland, Maine: Wm. Chamberlain.
 EDWARDS & WALKER Co., Portland, Maine: F. Walker.
 N. H. BRAGG & SONS, Bangor, Maine: Col. C. F. Bragg.
 CARLIN & FULTON, Baltimore, Md.: Geo. L. Irvin.
 BIGELOW & DOWSE Co., Boston, Mass.: Sam'l A. Bigelow.
 FRYE, PHIPPS & Co., Boston, Mass.: A. M. Wiley.
 BALDWIN, ROBBINS & Co., Boston, Mass.: Jno. H. Robbins, Austin H. Decatur.
 BROWN-WALES Co., Boston, Mass.: Wm. Q. Wales.
 J. BRECK & SONS CORPORATION, Boston, Mass.: J. F. Breck.
 A. C. HARVEY Co., Boston, Mass.: C. W. Henderson, Jr.
 E. P. SANDERSON, Boston, Mass.: E. P. Sanderson.
 WAITE, RANLET & Co., Boston, Mass.: H. W. Waite.
 G. F. BLAKE, JR., & Co., Boston, Mass.: Geo. F. Blake, Jr.
 CHAS. C. LEWIS & Co., Springfield, Mass.: Chas. C. Lewis.
 STANDART BROS., Detroit, Mich.: C. G. Bogue.
 FOSTER, STEVENS & Co., Grand Rapids, Mich.: W. S. Coleman.
 FLETCHER HARDWARE Co., Detroit, Mich.: Theo. G. Fletcher.
 LEE RICHARDSON & Co., Vicksburg, Miss.: Lee Richardson.
 MARSHALL-WELLS HARDWARE Co., Duluth, Minn., and Portland, Ore.: H. C. Marshall.
 HACKETT-WALTHER-GATES HARDWARE Co., St. Paul, Minn.: Major T. G. Walther.
 FARWELL, OZMUN, KIRK & Co., St. Paul, Minn.: R. A. Kirk, F. W. Harty, F. B. Platt.
 WEYTH HARDWARE & MFG. Co., St. Joseph, Mo.: J. A. Warner.
 RICHARDS & CONOVER HARDWARE Co., Kansas City, Mo.: J. E. Richards.
 TOWNLEY METAL & HARDWARE Co., Kansas City, Mo.: Geo. E. Garland.
 NORVELL-SHAPLEIGH HARDWARE Co., St. Louis, Mo.: S. Norvell, R. W. Shapleigh.
 WRIGHT & WILHEMY Co., Omaha, Neb.: W. S. Wright.
 LEE-GLASS ANDRESEN HARDWARE Co., Omaha, Neb.: H. J. Lee, W. M. Glass.
 JNO. B. VARICK Co., Manchester, N. H.: C. A. Adams.
 ALBANY HARDWARE & IRON Co., Albany, N. Y.: Chas. H. Turner.
 WEED & Co., Buffalo, N. Y.: L. C. Davenport.
 BEALS & Co., Buffalo, N. Y.: P. P. Beals, S. C. Pratt, E. J. McCarthy.
 BUFFALO WHOLESALE HARDWARE Co., Buffalo, N. Y.: Edgar C. Neal.
 BARKER, ROSE & CLINTON Co., Elmira, N. Y.: Capt. Fred Barker.
 IRVING D. BOOTH, Elmira, N. Y.: Irving D. Booth.
 MATHEWS & BOUCHER, Rochester, N. Y.: J. H. Boucher.
 WEAVER, PALMER & RICHMOND, Rochester, N. Y.: Griff. D. Palmer, Lee Richmond.
 BURHANS & BLACK Co., Syracuse, N. Y.: J. W. Black.
 J. M. WARREN & Co., Troy, N. Y.: H. S. Darby.
 TREMAN, KING & Co., Ithaca, N. Y.: R. H. Tremen.

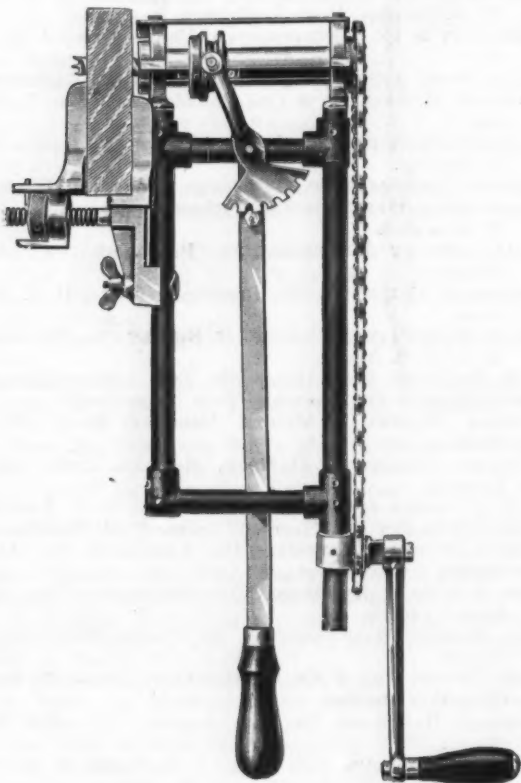
STOLLBERG HARDWARE Co., Toledo, Ohio: D. R. McChesney.
 MCINTOSH HARDWARE CORPORATION, Cleveland, Ohio: Geo. T. McIntosh, H. H. Bishop.
 GEO. WORTHINGTON Co., Cleveland, Ohio: W. D. Taylor, H. H. Rudd.
 LOCKWOOD-TAYLOR HARDWARE Co., Cleveland, Ohio: Hon. C. B. Lockwood.
 KRUSE & BAHLMANN HARDWARE Co., Cincinnati, Ohio: Felix Bahlmann.
 BOSTWICK, BRAUN & Co., Toledo, Ohio: Geo. A. Braun, H. L. Thompson.
 SUPPLEE HARDWARE Co., Philadelphia: W. W. Supplee, E. S. Fogg, J. D. Bonbright, Chas. A. Huff, F. W. Huff, N. F. Cressman, J. D. Green, Fulton Hall, N. D. Perine.
 SHIELDS & BRO., Philadelphia: Jno. R. Griffith, Paul A. Griffith.
 BIDDLE HARDWARE Co., Philadelphia: Chas. M. Biddle, J. H. Ritter, Edw. Knight, C. M. Biddle, Jr., Robt. Biddle 2nd.
 NEWLIN-KNIGHT HARDWARE Co., Philadelphia: W. H. Jones, W. H. & G. W. ALLEN, Philadelphia: H. F. Chorley, Jno. D. Barr, W. Allen Barr.
 J. M. VANCE & Co., Philadelphia: H. Vance Peters.
 SELTZER-KLAHR HARDWARE Co., Philadelphia: S. S. Scott, W. J. Parsons, Robt. J. Maharg.
 MERCHANT & Co., INCORPORATED, Philadelphia: J. A. McKee.
 W. F. POTTS & SON Co., Philadelphia: J. P. Balderston.
 GUMMEY, MCFARLAND & Co., Philadelphia: Wm. T. Gumme.
 T. JAMES FERNLEY, Philadelphia: T. James Fernley, Thos. A. Fernley.
 BINDLEY HARDWARE Co., Pittsburgh, Pa.: John Bindley.
 LOGAN-GREGG HARDWARE Co., Pittsburgh, Pa.: R. M. Repp, P. L. Logan.
 J. C. LINDSAY HARDWARE Co., Pittsburgh, Pa.: A. J. Buhler.
 CONGDON & CARPENTER Co., Providence, R. I.: H. E. Nickerson.
 UNION HARDWARE & ELECTRICAL SUPPLY Co., Providence, R. I.: C. S. Angell.
 C. M. MCCLUNG & Co., Knoxville, Tenn.: Bruce Keener.
 ORGILL BROS. & Co., Memphis, Tenn.: Jos. Orgill.
 THOMAS, BARNES & MILLER, Memphis, Tenn.: W. G. Thomas.
 BENEDICT, WARREN & DAVISON, Memphis, Tenn.: R. D. Warren.
 H. G. LIPSCOMB & Co., Nashville, Tenn.: H. G. Lipscomb.
 F. W. HEITMANN Co., Houston, Texas: F. A. Heitmann.
 BARKER-JENNINGS HARDWARE Co., Lynchburg, Va.: O. B. Barker.
 JOHN PRITZLAFF HARDWARE Co., Milwaukee, Wis.: Hon. John C. Koch.
 FRED. KRONER HARDWARE Co., La Crosse, Wis.: Jno. C. Kroner.
 E. K. TRYON, JR., & Co., Philadelphia: Chas. Z. Tryon, Evan G. Chandlee.
 HOFFMAN HARDWARE Co., Los Angeles, Cal.: Ed. Hoffman.
 VOIGHT & WILLIAMS, New York: J. C. Voight, J. O. Williams.

OTHER VISITORS.

THOS. E. OLIVER, Oliver Bros., New York.
 J. P. COLE, Biddle Purchasing Company, New York.
 CLEMENT M. BIDDLE, Biddle Purchasing Company, New York.
 F. R. BLAUVELT, R. K. Carter & Co., New York.
 ALFRED C. GREENING, R. K. Carter & Co., New York.
 W. B. PAULSCRAFT, R. K. Carter & Co., New York.
 WM. SHAW, Quebec, Canada.
 C. A. WHITWAM, Montreal, Canada.
 JAMES HARDY, Toronto, Canada.
 HON. A. CHAMBERLAIN, Governor of Connecticut.
 HON. D. M. PARRY, Indianapolis, Ind.
 W. P. BOGARDUS, Mt. Vernon, Ohio.
 M. L. COREY, Argos, Ind.
 E. M. BUSH, Evansville, Ind.
 S. R. MILES, Mason City, Iowa.
 T. FRANK IRELAND, Belding, Mich.
 C. B. CARTER, Knoxville, Tenn.
 A. C. RULOFSON, San Francisco.
 A. EUGENE BOLLES, Hardware, New York.
 JAMES H. KENNEDY, Hardware Dealers' Magazine, New York.
 DANIEL STERN, American Artisan, Chicago.
 S. P. JOHNSTON, American Artisan, Chicago.
 HARRY WISE, The Tradesman, Chattanooga, Tenn.
 D. O. MCKINNON, Hardware and Metal and Canadian Machinist, Montreal, Canada.
 R. J. SLATER, Le Prix Courant, Montreal, Canada.
 R. R. WILLIAMS, The Iron Age, New York.
 THOS. HOBSON, The Iron Age, Philadelphia.
 H. H. ROBERTS, The Iron Age, Chicago.
 W. C. ENGLISH, The Iron Age, Boston.
 AUGUST A. MILLER, The Iron Age, Philadelphia.

The McClellan Little Giant Joist Tool.

The joist tool shown herewith, built of steel, is designed for drilling in iron or wood, for car or ship builders, electricians, and for iron structural and railroad drilling. It is manufactured by Stephen McClellan, 1179 Herkimer street, Brooklyn, N. Y. The construction of the tool is such that it can be used in even closer places than common ratchet heads, it is explained, as its chuck draws back into its own body. The illustration shows the electrical style of tool, which is $7\frac{3}{4}$ inches wide, including a bit movement of $3\frac{3}{4}$ inches, which permits the boring of a hole 6 inches deep by using a bit with extended shank furnished with the tool. For strictly iron drilling the tool is built $4\frac{1}{2}$ inches wide, including a movement of $1\frac{1}{2}$ inches of the chuck, so that a space between two beams $4\frac{1}{2}$ inches wide could be entered and drilled $1\frac{1}{2}$ inches deep at any point. This is possible, as



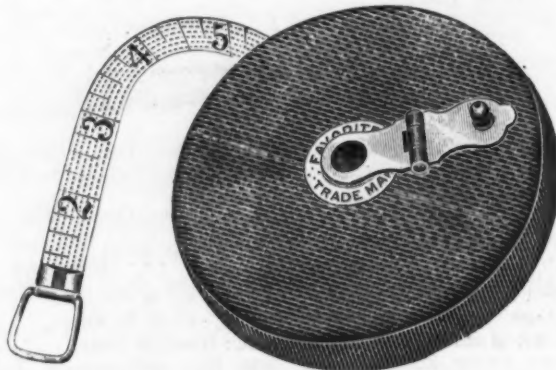
The McClellan Little Giant Joist Tool.

the adjustable holding clamp allows the tool to be held firmly as deep or as shallow down in the space as desired, and if work is such that the clamp cannot be used it can be dropped down out of the way, or taken off and the tool wedged or chained to the work, as the tool does not move. The chuck in its cylinder moves by the use of the lever, which may be of any length according to the power needed. It works in notches similar to a ratchet. The tool for iron has also a screw feed. The crank handle head is a ratchet to use in close work. The chain has a tension take up. With the electrical tool is furnished a floor extension for working from the floor to overhead joists. Tools will be made to suit individual requirements.

Cotton Duck Case Measuring Tape.

The Keuffel & Esser Company, 127 Fulton street, New York, has just introduced a comprehensive line of Favorite low priced measuring tapes, supplementing a large line of measuring tapes of fine quality. The illustration herewith reproduces a new style of case for a cotton line measuring tape, the covering of which is pressed cotton duck. It is represented by the company to be water proof, strong, durable and light in weight, at the same time overcoming the objection to the sharp edges of the patent leather case, with which it competes in price. Other cases in the same group, as to quality and price,

include enameled steel (ass skin), pressed leather and sewed leather. Continuing along the same lines so as to enable the dealers, if so disposed, to supply themselves



Pressed Cotton Duck Case Measuring Tape.

with complete assortments of its product, the company has also added a new line of low priced Tip Top steel and linen pocket tapes. They are spring winding and in nicked brass cases. A new illustrated price-list of the grades described is now ready for distribution.

Tooth Brush Holder.

Searls Mfg. Company, Newark, N. J., for whom Frederic Klages, 127 Duane street, New York, is sole agent, has added another article to its line of bathroom specialties in the way of tooth brush holders for the wall,



Tooth Brush Holder.

as here illustrated. This device is stamped from one piece of brass, polished and nicked. It is $9 \times 1\frac{1}{4}$ inches in size and will hold six tooth brushes. The company also makes one similar in size, except that it is of much heavier construction in cast brass, with the six holders, also, of cast brass and riveted from back of plate. The former is No. 3736 and the heavier one No. 3735, the holder of sheet brass costing but half as much as the latter.

The Buckeye Screen Door Hinge.

The Shelby Spring Hinge Company, Shelby, Ohio, is offering the spring door hinge herewith illustrated. It is



The Buckeye Screen Door Hinge.

made of wrought steel, neatly embossed, is simple in construction, and is provided with a very heavy spring.

The Berthoud Fruit Jar Wrench.

The fruit jar wrench shown herewith has a flat steel handle, to which is pivoted a steel circle, made adjustable by a circular spring. As shown in Fig. 2, the thumb piece is pushed forward, which enlarges the circle

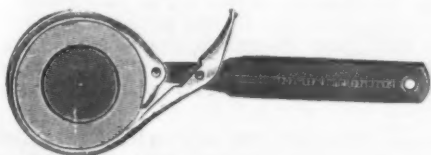


Fig. 1.—The Berthoud Fruit Jar Wrench.

so as to go around the screw cap of the jar. The circle thus adjusts itself to the size of the cap, which may then be screwed on or off. The wrenches are furnished in japan finish and packed one dozen in a box. They are being introduced by R. J. Berthoud, Swanton, Ohio,

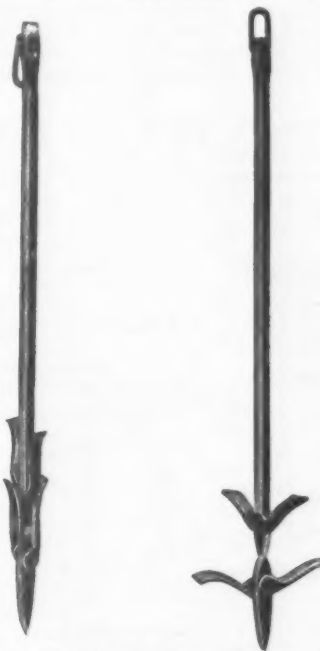


Fig. 2.—The Berthoud Wrench in Use.

who states that the wrench is instantly adjustable to any standard fruit jar top, that it has a grip which becomes tighter with increased pressure, that it cannot slip, and that the tightest tops are instantly loosened without effort and as easily tightened.

The Crouse-Hinds Harpoon Guy Anchor.

The cuts here shown are of a guy anchor, the one to the left representing it with the wings closed during installation and the other cut showing it after installation. To install the anchor a hole 2½ feet deep by 4 inches in diameter is made with a digging bar, at the same angle that the guy will run, when the anchor is driven full length with a sledge. The anchor is then pulled out about 6 inches until the wings spread, when the guy may be attached. The device is designed to take the place of the so called "dead man" or "slug," and the



The Crouse-Hinds Harpoon Guy Anchor.

installation is referred to as being quicker and cheaper. The anchor is made of forged steel and weighs 22 pounds. The rod is 5 feet long and 1 inch square. The wings when closed measure 4 inches, and when spread 13 inches. The manufacturers remark that only 10 to 40 blows with a sledge are required to install it; that it can be driven in any kind of wet, dry or frozen soil, and that it can be installed in many places where it is not possible to dig up the ground to bury a "dead man" or "slug." The anchor has recently been put on the market by Crouse-Hinds Company, Syracuse, N. Y.

PAINTS, OILS AND COLORS

White Lead, Zinc, &c.—

Lead, English white, in Oil..	9½ @ 9½
Lead, American white, in Oil:	
Lots of 500 lb or over.....	@ 6½
Lots less than 500 lb.....	@ 7
In Barrels.....	@ 7
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	@ ½
Lead, White, in oil, 12½ lb tin	
pails, add to keg price.....	@ 1
Lead, White, in oil, 1 to 5 lb	
ass'ted tins, add to keg price ..	@ 1½
Lead, American, Terms: For lots 12	
tons and over ¼¢ rebate; and 2% for	
cash if paid in 15 days from date of	
invoice; for lots of 500 lbs. and over	
2% for cash if paid in 15 days from	
date of invoice, for lots of less than	
500 lbs. net.....	@ 6
Lead, White, Dry in bbls.....	@ 6
Zinc, American, dry.....	@ 4½ @ 4½
Zinc, French:	
Paris, Red Seal, dry.....	@ 8½
Paris, Green Seal, dry.....	@ 9½
Antwerp, Red Seal, dry.....	@ 7½
Antwerp, Green Seal, dry.....	@ 8½
Zinc, V. M. French, in Poppy Oil:	
Green Seal:	
Lots of 1 ton and over.....	@ 11½ @ 12
Lots of less than 1 ton.....	@ 11½ @ 12½
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over.....	@ 10½ @ 10½
Lots of less than 1 ton.....	@ 10½ @ 11
Discounts—French Zinc—Discounts	
to buyers of 10 bbl. lots of one or mixed	
grades, 1%; 25 bbls., 2%; 50 bbls., 4%.	

Dry Colors—

Black, Carbon.....	@ 5 @ 10
Black, Drop, Amer.....	@ 4 @ 6
Black, Drop, Eng.....	@ 15
Black, Ivory.....	@ 16 @ 20
Lamp, Com.....	@ 4 @ 6
Blue, Celestial.....	@ 4 @ 6
Blue, Chinese.....	@ 2 @ 32
Blue, Prussian.....	@ 30
Blue, Ultramarine.....	@ 15
Brown, Spanish.....	@ 1
Carmine, No. 10.....	@ 3.55 @ 4.00
Green, Chrome, ordinary.....	@ 3½ @ 6

Green, Chrome, pure.....	@ 17 @ 25
Lead, Red, blue, ½ bbls. and kegs:	
Lots 500 lb or over.....	@ 6½
Lots less than 500 lb.....	@ 7
Litharge, bbls., ½ bbls. and kegs:	
Lots 500 lb or over.....	@ 6½
Lots less than 500 lb.....	@ 7
Ocher, American Golden.....	@ 2½ @ 3½
Ocher, French.....	@ 1½ @ 2½
Ocher, Foreign Golden.....	@ 3 @ 4
Orange Mineral, English.....	@ 8½ @ 10½
Orange Mineral, French.....	@ 10½ @ 11½
Orange Mineral, German.....	@ 7 @ 10
Orange Mineral, American.....	@ 8 @ 8½
Red, Indian, English.....	@ 4½ @ 8½
Red, Indian, American.....	@ 3 @ 3½
Red, Turkey, English.....	@ 4 @ 10
Red, Tuscan, English.....	@ 7 @ 10
Red, Venetian, Amer.....	@ 100 lb \$0.50 @ 1.25
Red Venetian, English, 100 lb	@ \$1.15 @ 1.75
Sienna, Italian, Burnt and	
Powdered.....	@ 1½ @ 2
Sienna, Ital., Raw, Powd.....	@ 3 @ 6½
Sienna, American, Raw.....	@ 1½ @ 2
Sienna, American, Burnt and	
Powdered.....	@ 1½ @ 2
Talc, French.....	@ 1 ton \$20.00 @ 30.00
Terra Alba, French.....	@ 100 lb 90 @ 1.00
Terra Alba, English.....	@ 90 @ 1.00
Terra Alba, American No. 1.....	@ 60 @ 70
Umber, T. H. B. & Pow.....	@ 2½ @ 3½
Umber, Turkey, Raw & Pow.....	@ 2½ @ 3½
Umber, Burnt, Amer.....	@ 1½ @ 2
Umber, Raw, Amer.....	@ 1½ @ 2
Yellow, Chrome.....	@ 11 @ 14
Vermilion, American Lead.....	@ 10 @ 25
Vermilion, Quicksilver, bulk.....	@ 65
Vermilion, Quicksilver, bags.....	@ 66
Vermilion, English, Import.....	@ 75 @ 90
Vermilion, Chinese.....	@ 30.00 @ 1.00

Colors in Oil—

Black, Lampblack.....	@ 12 @ 14
Blue, Chinese.....	@ 2 @ 32
Blue, Prussian.....	@ 30
Blue, Ultramarine.....	@ 15
Brown, Vandyke.....	@ 11 @ 14
Green, Chrome.....	@ 10 @ 15
Green, Paris.....	@ 24

Sienna, Raw.....	@ 12 @ 15
Sienna, Burnt.....	@ 12 @ 15
Umber, Raw.....	@ 11 @ 14
Umber, Burnt.....	@ 11 @ 14

Miscellaneous—

Barytes, White, Foreign.....	@ 17.50 @ 20.00
Barytes Amer, floated.....	@ 16.00 @ 17.00
Barytes, Crude, No. 1.....	@ 10.00 @ 11.00
Chalk, in bulk.....	@ 3.00 @ 3.25
Chalk, in bbls.....	@ 100 lb 2.50 @ 3.50
China Clay, English.....	@ 12.00 @ 17.00
Cobalt, Oxide.....	@ 100 lb 2.50 @ 3.50
Whiting, Common.....	@ 100 lb 2.50 @ 3.50
Whiting, Gilders.....	@ 55 @ 57
Whiting, Extra Gilders.....	@ 55 @ 57

Putty—

In bladders.....	@ 1½ @ 2
In bulk.....	@ 1.05 @ 1.15
In cans, 1 lb to 5 lb.....	@ 2½ @ 4
In cans, 12½ to 25 lb.....	@ 1½ @ 2

Spirits Turpentine—

In Oil bbls.....	@ 53½ @ 54
In machine bbls.....	@ 54 @ 54½

Glue—

Cabinet.....	@ 11 @ 15
Common Bone.....	@ 6 @ 8
Extra White.....	@ 18 @ 21
Foot Stock, White.....	@ 11 @ 14
Foot Stock, Brown.....	@ 7 @ 10
German Hides.....	@ 12 @ 18
French.....	@ 10 @ 40
Irish.....	@ 13 @ 16
Low Grade.....	@ 8 @ 11
Medium White.....	@ 14 @ 17

Gum Shellac—

Bleached Commercial.....	@ 43 @ 44
Bone Dried.....	@ 43 @ 44
Button.....	@ 45 @ 50
Diamond I.....	@ 59 @ 67
Fine Orange.....	@ 45 @ 46
A. C. Garnet.....	@ 1.00 @ 1.00
Octagon B.....	@ 54 @ 55
T. N.....	@ 48 @ 52
V. S. O.....	@ 60 @ 61

Animal, Fish and Vegetable Oils—

Linseed, City, raw.....	@ gal 41 @ 42
Linseed, City, boiled.....	@ 43 @ 44
Linseed, State and West'n, raw.....	@ 38 @ 39
Linseed, raw Calcutta seed.....	@ 57 @ 58
Lard, Prime, Winter.....	@ 48 @ 49
Lard, Extra No. 1.....	@ 48 @ 49
Lard, No. 2.....	@ 38 @ 39
Cotton-seed, Crude, f.o.b. mills.....	@ 20 @ 21
Cotton-seed, Summer Yellow,	
prime.....	@ 27 @ 28
Cotton-seed, Summer Yellow	
off grades.....	@ 25½ @ 27
Sperm, Crude.....	@ 50 @ 51
Sperm, Natural Spring.....	@ 53 @ 55
Sperm, Bleached Spring.....	@ 57 @ 58
Sperm, Natural Winter.....	@ 55 @ 56
Sperm, Bleached Winter.....	@ 58 @ 59
Tallow, Prime.....	@ 48 @ 50
Whale, Crude.....	@ 40 @ 41
Whale, Natural Winter.....	@ 43 @ 44
Whale, Bleached Winter.....	@ 45 @ 46
Menhaden, Brown, Strained.....	@ 27 @ 28
Menhaden, Light, Strained.....	@ 28 @ 29
Menhaden, Bleached Winter.....	@ 30 @ 32
Menhaden, Ex-Bld, Winter.....	@ 32 @ 33
Menhaden, Southern.....	@ 19½ @ 20
Cocoon, Ceylon.....	@ 7 @ 7½
Cocoon, Cochinchina.....	@ 7½ @ 8
Cod, Domestic.....	@ 34 @ 35
Cod, Newfoundland.....	@ 30 @ 31
Red Elaine.....	@ 28 @ 30
Red Saponified.....	@ 1½ @ 5
Olive, Italian, bbls.....	@ 52 @ 55
Neatsfoot, prime.....	@ 50 @ 51
Palm, prime Logos.....	@ 1½ @ 5½ @ 6

Mineral Oils—

Black, 20 gravity, 25¢ cold	
test.....	@ gal 11 @ 12
Black, 29 gravity, 15 cold test.....	@ 12 @ 13
Black, Summer.....	@ 11 @ 12
Cylinder, light filtered.....	@ 18½ @ 19½
Cylinder, dark filtered.....	@ 16½ @ 17½
Paraffine, 90-907 gravity.....	@ 13 @ 13½
Paraffine, 903 gravity.....	@ 12 @ 12½
Paraffine, 883 gravity.....	@ 9½ @ 10
Paraffine, red.....	@ 12 @ 13½

In small lots ¼¢ advance.

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33 $\frac{1}{3}$ @ 33 $\frac{1}{3}$ & 10% signifies

that the price of the goods in question ranges from 33 $\frac{1}{3}$ per cent. discount to 33 $\frac{1}{3}$ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1904, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, $\frac{1}{2}$ doz. \$3.00.....33 $\frac{1}{3}$ %
North's.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvils..... $\frac{1}{2}$ lb 7 $\frac{1}{2}$ @7 $\frac{1}{2}$ %
Hay-Budden, Wrought.....80%
Horseshoe brand, Wrought.....80%
Trenton..... $\frac{1}{2}$ lb 9@9 $\frac{1}{2}$ %

Imported—

Peter Wright & Sons..... $\frac{1}{2}$ lb 10 $\frac{1}{2}$ %
Anvil, Vise and Drill—

Millers Falls Co., \$18.00.....15&10%

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Hull Bros. Co.....30&10%
Livingston Nail Co.....33 $\frac{1}{3}$ %

Augers and Bits—

Com. Double Spur.....75@75&10%
Boring Mach. Augers, 70&10@75%
Car Bits, 12-in. twist.....60@60&10%
Jennings' Pattern.....60&10@70%
Ford's Auger and Car Bits.....40&5%
Forester Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. tip, R. Jennings' list.....25%
No. 30, R. Jennings' list.....40&7 $\frac{1}{2}$ %
Russell Jennings.....25&10&2 $\frac{1}{2}$ %
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....15%
Millers Falls.....50&10&7 $\frac{1}{2}$ %
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist.....60&10%
Wright's Jennings' Bits (R. Jennings' list).....50%

Bit Stock Drills—

See Drills, Twist.

Expansive Bits—

Clark's small, \$18; large, \$26.....50&10%
Clark's Pattern, No. 1, $\frac{1}{2}$ doz. \$25.....50&10%
No. 2, \$18.....50&10%
Ford's, Clark's Pattern.....50&10%
C. E. Jennings & Co., Steer's Pat.....25%
Swan's.....60%

Gimlet Bits—

Common Dble. Cut, gro. \$3.00@3.25
German Pattern..... $\frac{1}{2}$ doz. \$4.75

Hollow Augers—

Roanney Pat., per doz. \$10.00@11.00
Ames.....25&10%
New Patent.....25&10%
Universal.....20%
Wood's Universal.....25%

Ship Augers and Bits—

Ford's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15%
Watrous.....35&5%
Ohio Tool Co.'s.....40%
Snell's.....40%

Awl Hafts—See Hafts, Awl.

Awls—

Brad Awls:
Handled.....gro. \$2.75@3.00
Unh'dled, Shidred.....gro. \$3.63@66¢
Unh'dled, Patent.....gro. \$6.60@70¢
Peg Awls:
Unh'dled, Patent.....gro. \$1.61@34¢
Unh'dled, Shidred.....gro. \$5.65@70¢
Scratch Awls:
Handled, Com.....gro. \$3.50@4.00
Handled, Socket.....gro. \$11.50@12.00
Hurwood.....40%

Awl and Tool Sets—See

Sets, Awl and Tool.

Axes—

Single Bit, base weights. (up to 3 $\frac{1}{2}$ lb.)
First Quality.....\$6.50
Second Quality.....\$5.75
NOTE.—Heavier Weights add Extras as per regular schedule.

Axle Grease—

See Grease, Axle

Axles— Iron or Steel

Concord, Loose Collar.....40&1 $\frac{1}{2}$ %
Concord, Solid Collar.....45&1 $\frac{1}{2}$ %
No. 1 Common.....34&1 $\frac{1}{2}$ %
No. 1 $\frac{1}{2}$ Com., New Style.....44¢
No. 2 Solid Collar.....44¢
Nos. 7, 8, 11 and 12.....75@75&5%
Nos. 13 to 15.....70¢10@75&5%
Nos. 15 to 18.....60¢10@60&10%
Nos. 19 to 22.....70¢10@75%

Boxes, Axle—

Common and Concord, not turned lb. 4 $\frac{1}{4}$ @4 $\frac{1}{4}$ %

Common and Concord, turned lb. 5@5 $\frac{1}{4}$ %

Half Patent.....lb. 9@9 $\frac{1}{2}$ %

Bait— Fishing—

Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances— Sash—

Caldwell new list.....50%
Pullman.....50&10@60%

Spring—

Spring Balances.....60@60&5%
Chattillon's:
Light Sps. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—See Wire, Barb.

Bars— Crow—

Steel Crowbars, 10 to 40 lb. per lb. 2 $\frac{1}{2}$ @2 $\frac{1}{2}$ %

Towel—

No. 10 Ideal, Nickel Plate, $\frac{1}{2}$ gro. \$5.50

Beams, Scale—

Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered $\frac{1}{2}$ doz. \$0.85;
Tinned.....\$1.00
No. 11 Wire Coppered $\frac{1}{2}$ doz. \$1.10;
Tinned.....\$1.20
No. 10 Wire Galvanized $\frac{1}{2}$ doz. \$1.75
Western W. G. Co.:
No. 1 Electric..... $\frac{1}{2}$ gro. \$7.80
No. 2 Buffalo..... $\frac{1}{2}$ gro. \$9.00
No. 3 Perfection Dust..... $\frac{1}{2}$ gro. \$8.00

Egg—

Holt-Lyon Co.:
Holt, No. A, Japanned..... $\frac{1}{2}$ doz. \$1.20
Holt, No. 1, Tinned..... $\frac{1}{2}$ doz. \$1.50
Holt, No. B, Japanned..... $\frac{1}{2}$ doz. \$2.00
Holt, No. 2, Tinned..... $\frac{1}{2}$ doz. \$2.25
Lyon, No. 2, Japanned..... $\frac{1}{2}$ doz. \$1.25
Lyon, No. 3, Japanned..... $\frac{1}{2}$ doz. \$1.50
Taplin Mfg. Co.:
No. 60 Improved Dover.....\$6.00
No. 75 Improved Dover.....\$6.50
No. 100 Improved Dover.....\$7.00
No. 102 Improved Dover, Tin.....\$8.50
No. 150 Improved Dover, Hotel.....\$15.00
No. 152 Imp'd Dover, Hotel, T'd.....\$17.00
No. 200 Imp'd Dover Tumbler.....\$8.50
No. 202 Imp'd Dover Tumbler, T'd.....\$9.50
No. 300 Imp'd Dover Mammoth, $\frac{1}{2}$ doz.....\$25.00
Western, W. G. Co., Buffalo.....\$7.00
Wonder (S. S. & Co.), $\frac{1}{2}$ gro. net, \$6.00

Bellows—

Blacksmith, Standard List.....60¢10@70&10%

Blacksmiths'—

Inch. 30 32 34 36 38 40
Each \$3.25 3.50 4.00 4.50 5.00 5.75
Extra Length:
Each \$3.75 4.25 4.75 5.25 6.00 7.00

Hand—

Inch. 6 7 8 9 10
Doz. \$4.50 5.00 5.50 6.00 6.50

Molders—

Inch. 9 10 11 12 14
Doz. \$8.00 9.00 10.50 12.50 14.50

Bells— Cow—

Ordinary goods.....75¢5@75&10%
High grade.....70¢10@70&10%
Jersey.....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's.....60&10%
Trip Gong.....50&10@50&10%
Yankee Gong.....55%

Hand—

Hand Bells, Polished, Brass.....60¢5@60&10&5%

White Metal.....60¢5@60&10&5%

Nickel Plated.....50¢10@50&10&5%

Swiss.....60¢60&7 $\frac{1}{2}$ %

Cone's Globe Hand Bells.....33 $\frac{1}{3}$ @35%

Silver Chime.....33 $\frac{1}{3}$ @35%

Miscellaneous—

Farm Bells.....lb. 2 $\frac{1}{4}$ ¢

Steel Alloy Church and School.....50¢10&5@60&5%

American Tube & Stamping Co. Gongs.....75%

Table Call Bells.....50¢50&10%

Belting— Leather—

Extra Hvy, Short Lap.....60¢60&5%

Regular Short Lap.....60¢10@60&10&10%

Standard.....70¢70&5%

Light Standard.....70¢10%

Cut Leather Lacing.....60¢10%

Leather Lacing Sides, per sq. ft. 18¢

Rubber—

Agricultural (Low Grade).....75¢75&5%

Common Standard.....70¢70&10%

Standard.....65¢70%

Extra.....60¢5@60&10%

High Grade.....50¢5@50&10%

Bench Stops— See Stops, Bench

Benders and Upsetters, Tire—

Detroit Perfect Tire Bender.....40%

Green River Tire Benders and Upsetters.....20%

Detroit Stoddard's Lightning Tire Upsetters, No. 1, \$4.25; No. 2, \$7.25;

No. 3, \$10.50; No. 4, \$16.25; No. 5, \$20.50.

Bicycle Goods—

John S. Leng's Son's 1902 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Blocks— Tackle—

Common Wooden.....70¢10@75&5%

Hartz St. Tackle Blocks.....50&50&5%

Hollow Steel Blocks, with Ford's Patent Sheaves.....50&10%

Lane's Patent Automatic Lock and Junior.....30%

Stowell's Novelty, Mal. Iron.....50&10%

Stowell's Self Loading.....60%

See also Machines, Hoisting.

Boards, Stove—

Zinc, Crystal, &c.....30¢19@40&10%

Boards, Wash—

See Washboards.

Bobs, Plumb—

Kentel & Esler Co.....80 $\frac{1}{2}$ %

Bolts—

Carriage, Machine, &c.—

Common Carriage:
 $\frac{3}{4}$ & 6 and Smaller.....75¢10@80%

Larger sizes.....75¢75&10%

Phila. Eagle \$3.00 list May 21, '99.....80&10%

Bolt Ends, list Feb. 14, '95, 75¢.....80&10%

Machine.....75¢5@75&10&5%

Machine with C. & T. Nuts.....70¢5@%
Door and Shutter—

Cast Iron Barrel, Round Brass Knob:
Inch. 3 4 5 6 8
Per doz. \$0.26 .30 .39 .47 .63
Cast Iron Spring Foot:
Inch. 6 8 10
Per doz. \$1.00 1.25 1.75
Cast Iron Chain, Flat, Japanned:
Inch. 6 8 10
Per doz. \$0.75 1.05 1.90
Cast Iron Shutter, Brass Knobs:
Inch. 6 8 10
Per doz. \$0.57 .80 1.00
Wrt Barrel Jap'd.....75¢10@75&10&10%

Wrt "Bronzed".....10¢10@50&10&10%

Wrought Spring.....70¢10@70&10&10%

Wrt Shutter.....50¢10@50&10&10%

Wrt Square Neck.....70¢10@70&10&10%

Wrt Square.....66 $\frac{2}{3}$ @10@65 $\frac{2}{3}$ @10&10%

Ives' Patent Door.....60%

Stove and Plow—

Plow.....8¢10@%

Stove.....80¢5@80&10&5%

Tire—

Common.....72 $\frac{1}{2}$ %

Norway Iron.....80%

American Screw Company:
Norway Phila., list Oct. 16, '84.....82 $\frac{1}{2}$ %

Eagle Phila., list Oct. 16, '84.....82 $\frac{1}{2}$ %

Bay State, list Dec. 28, '90.....72 $\frac{1}{2}$ %

Franklin Moore Co.:
Norway Phila., list Oct. 16, '84.....80%

Eagle Phila., list Oct. 16, '84.....82 $\frac{1}{2}$ %

Eclipse, list Dec. 28, '90.....72 $\frac{1}{2}$ %

Russell, Burdall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '90.....72 $\frac{1}{2}$ %

Norway Phila., list Oct., '84.....80%

Upon Nut Co.:
Tire Bolts.....72 $\frac{1}{2}$ %

Borers, Tap—

Borers Tap, Ring, with Handle:
Inch. 1 $\frac{1}{4}$ 1 $\frac{1}{2}$ 1 $\frac{3}{4}$ 2
Per doz. \$4.30 5.00 5.75 7.25

Inch. 2 $\frac{1}{4}$ 2 $\frac{1}{2}$ 2 $\frac{3}{4}$ 3
Per doz. \$5.65 11.50

Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.65; No. 3, \$2.50 each.....25%

Boxes, Mitre—

C. E. Jennings & Co.....30%

Langdon.....15&10%

Perfection..... $\frac{1}{2}$ doz. \$30.00

Schatz.....40%

Braces—

Common Rail, American.....\$1.15@1.25

Barber's.....50&10&10@60&10%

Fray's Genuine Spofford's.....60%

Fray's No. 70 to 120, 81 to 123, 207 to 411.....60%

C. E. Jennings & Co.....50&5%

Mayhew's Ratchet.....50%

Mayhew's Quick Action Hay Pat. 50%

Millers Falls Drill Braces.....25&10%

P. S. & W. Co., Peck's Pat. 60&10@65%

Brackets—

Wrought Steel.....80¢10@%
Bradley's Wire Shelf:
Full cases.....80&10&10%

Broken cases.....80&10%

Griffin's Pressed Steel.....80%

Griffin's Folding Brackets.....70&10%

Stowell's Cast Shelf.....75%

Stowell's Sink.....50%

Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong..... per lb. 4¢
 Sharp, 1 prong..... per lb. 4¢
 Gautier, Blunt..... 4¢
 Gautier, Sharp..... 4¢
 Perkins, Blunt Toe..... 4¢
 Perkins, Sharp Toe..... 4¢

Can Openers—

See Openers, Can.

Cans, Milk—

Illinois Pattern..... 5 8 10 gal.
 New York Pattern..... 1.50 2.20 2.45 each.
 Baltimore Pattern..... 1.50 2.20 2.45 each.
 Dubuque..... 1.35 1.60 1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:
 3 5 10 gal.
 \$ 8.00 60.00 120.00 gro., net.

Caps, Percussion—

Eley's E. B..... 52¢/55¢
 G. D..... per M 34¢/35¢
 F. L..... per M 40¢/42¢
 G. E..... per M 38¢/40¢
 Musket..... per M 62¢/63¢

Primers—

Berdan Primers, \$2 per M. 20¢/5¢
 B. L. Caps (Sturtevant Shells)
 \$2 per M..... 20¢
 All other primers per M. \$1.52¢/1.60

Cartridges—

Blank Cartridges:
 32 C. F., \$5.50..... 10¢/5¢
 32 C. F., \$7.00..... 10¢/5¢
 22 cal. Rim, \$1.50..... 10¢/5¢
 32 cal. Rim, \$2.75..... 10¢/5¢
 B. B. Caps, Con. Ball, 8cypd. \$1.90
 B. B. Caps, Round Ball..... \$1.19
 Central Fire..... 25¢
 Target and Sporting Rifle..... 15¢/5¢
 Primed Shells and Bullets..... 15¢/10¢
 Rim Fire, Sporting..... 50¢
 Rim Fire, Military..... 15¢/5¢

Casters—

Bed..... 70¢/70¢/10¢
 Plate..... 60¢/10¢/60¢/10¢/5¢
 Philadelphia..... 75¢/75¢/10¢
 Acme, Ball Bearing..... 33¢
 Boss..... 70¢/10¢
 Boss Anti-Friction..... 70¢/10¢
 Gem (Roller Bearing)..... 80¢
 Martin's Patent (Phoenix)..... 45¢
 Standard Ball Bearing..... 30¢
 Tucker's Patent low list..... 30¢
 Yale (Double Wheel) low list..... 50¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Coil—

American Coil, Straight Link:
 3-16 1/4 5-16 3/4 7-16 1/2 9-16
 7-16 5-16 4-15 3-15 3-10 3-20 3-15
 3-10 3-10 2-95 2-95 per 100 lb.
 German Coil..... 60¢/10¢/60¢/10¢/70¢

Halters and Ties—

Halter Chains..... 60¢/10¢/60¢/10¢/10¢
 German Pattern Halter Chains,
 list July 24, '97..... 60¢/10¢/10¢
 Cow Ties..... 60¢/60¢/10¢

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
 6-1/2-6-3, Str'ght, with ring, \$23.50
 6-1/2-6-2, Str'ght, with ring, \$24.50
 6-1/2-8-2, Str'ght, with ring, \$28.00
 6-1/2-10-2, Str'ght, with ring, \$32.00
 NOTE—Add 2¢ per pair for Hooks.
 Twist Traces 2¢ per pair higher than
 Straight Link.

Trace, Wagon and Fancy
 Chains..... 60¢/5¢/60¢/10¢/5¢

Miscellaneous—

Jack Chain, list July 10, '93:
 Iron..... 60¢/10¢/60¢/10¢/5¢
 Brass..... 60¢/10¢/60¢/10¢/10¢
 Safety Chain..... 75¢/75¢/10¢/5¢
 Gal. Pump Chain..... 10¢/4¢/4¢
 Covert Mfg. Co.:
 Breast..... 40¢/2¢
 Halter..... 40¢/2¢
 Heel..... 40¢/2¢
 Rein..... 40¢/2¢
 Stallion..... 40¢/2¢
 Covert Sad. Works:
 Breast..... 70¢
 Halter..... 70¢
 Hold Back..... 70¢
 Rein..... 70¢
 Oneida Community:
 Am. Coil and Halters..... 40¢/40¢/5¢
 Am. Cow Ties..... 45¢/50¢
 Eureka Coil and Halter..... 45¢/50¢/5¢
 Niagara Coil and Halter..... 45¢/50¢/5¢
 Niagara Cow Ties..... 45¢/50¢/10¢/5¢
 Niagara Wire Dog Chains..... 45¢/50¢/5¢
 Wire Goods Co.:
 Dog Chain..... 70¢/10¢
 Universal Dbl.-Jointed Chain..... 50¢

Chalk—(From Jobbers.)

Carpenters' Blue..... gro. 35¢/38¢
 Carpenters' Red..... gro. 30¢/33¢
 Carpenters' White..... gro. 25¢/28¢
 See also Crayons.

Checks, Door—

Bardley's..... 45¢
 Columbia..... 50¢/10¢
 Eclipse..... 60¢/10¢

Chests, Tool—

American Tool Chest Co.:
 Boy's Chests, with Tools..... 55¢
 Youth's Chests, with Tools..... 40¢
 Gentlemen's Chests, with Tools..... 30¢
 Farmers' Carpenters', etc., Chests,
 with Tools..... 25¢
 Machinists' and Pipe Fitters'
 Chests, Empty..... 50¢
 Tool Cabinets..... 50¢
 E. Jennings & Co.'s Machinists'
 Tool Chests..... 33¢/10¢

Chisels—**Socket Framing and Firmer**

Standard List..... 70¢/10¢/75¢/10¢
 Buck Bros..... 30¢
 Charles Buck..... 30¢
 C. E. Jennings & Co. Socket Firmer
 No. 10..... 60¢
 C. E. Jennings & Co. Socket Fram-
 ing No. 15..... 60¢
 Ohio Tool Co.'s..... 70¢
 Swan's..... 70¢
 L. & I. J. White..... 30¢/30¢/5¢

Tanged—

Tanged Firmers..... 40¢/5¢/40¢/10¢
 Buck Bros..... 30¢
 Charles Buck..... 30¢
 C. E. Jennings & Co. Nos. 191, 181, 25¢
 L. & I. J. White, Tanged..... 25¢/5¢

Cold Chisels, good quality..... 13¢/15¢
 Cold Chisels, fair quality..... 11¢/12¢
 Cold Chisels, ordinary..... 9¢/10¢

Chucks—

Beach Pat., each \$8.00..... 35¢/5¢
 Pitt's Positive Drive..... 25¢
 Empire..... 25¢
 Blacksmiths..... 25¢
 Skinner Patent Chucks:
 Independent Lathe Chucks..... 50¢
 Universal..... 50¢
 Combination..... 50¢
 Drill Chucks, New Model..... 30¢
 Drill Chucks, Standard..... 30¢
 Drill Chucks, Skinner Pat., 3, 4, 10
 Drill Chucks, Skinner Pat., 3, 4, 10
 5 6 7 8..... 30¢
 Drill Chucks, Positive Drive..... 30¢
 Planer Chucks..... 25¢
 Face Plate Jaws..... 40¢
 Standard Tool Co.:
 Improved Drill Chuck..... 45¢
 Union Mfg. Co.:
 Combination..... 50¢
 Gear Drill..... 35¢
 Combination Geared Scroll..... 40¢
 Geared Scroll..... 40¢
 Independent..... 40¢
 Independent Steel..... 40¢
 Union Drill..... 45¢
 Universal..... 50¢
 Independent Iron F. Plate Jaws..... 40¢
 Independent Steel F. Plate Jaws..... 40¢
 Westcott Patent Chucks:
 Lathe Chucks..... 50¢
 Little Giant Auxiliary Drill..... 50¢
 Little Giant Double Grip Drill..... 50¢
 Little Giant Drill, Improved..... 50¢
 Oneida Drill..... 50¢
 Scroll Combination Lathe..... 50¢

Clamps—

Adjustable, Hammers..... 20¢/20¢/5¢
 Cabinet, Sargent's..... 50¢/10¢
 Carriage Makers, P. S. & W. Co. 50¢
 Carriage Makers, Sargent's..... 60¢
 Besly, Parallel..... 33¢/10¢
 Lineman's, Utica Drop Forge & Tool
 Co..... 40¢
 Saw Clamps, see Vises, Saw Filers.

Cleaners, Drain—

Iwan's Champion, Adjustable..... 55¢
 Iwan's Champion, Stationary..... 45¢

Sidewalk—

Star Socket, All Steel..... 40¢/5¢ net
 Star Shank, All Steel..... 33¢/24¢ net
 W. & C. Shank, All Steel..... 40¢
 7/8 in., \$3.00; 8 in., \$3.25.

Cleavers, Butchers—

Poster Bros..... 30¢
 New Haven Edge Tool Co..... 45¢
 Fayette R. Plumb..... 33¢/33¢/5¢
 L. & I. J. White..... 30¢

Clippers—

Chicago Flexible Shaft Company:
 '98 Chicago Horse..... 38.75 15¢
 1902 Chicago Horse..... 10.75 20¢
 20th Century Horse, each..... 35.00 20¢
 Lightning Belt..... 15.00 15¢
 Chicago Belt..... 32.00 15¢
 Stewart's Patent Sheep..... 12.75 20¢

Finger Nail Clippers—

Smith & Hemenway Co. 1/2 doz. net \$2.00

Clips, Axle—

Eagle, 5-16 and 3/4 in. 75¢/75¢/10¢
 Norway, 5-16 and 3/4 in. 60¢/10¢/70¢

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
 Compression, Plain Bibbs,
 Globe, Kerosene, Racking,
 &c., Cocks..... 70¢/10¢/75¢

Coffee Mills—

See Mills, Coffee.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
 Son's list..... 40¢
 Leather, Walter B. Stevens & Son's
 list..... 40¢

Combs, Curry—

Metal Stamping Co..... 40¢

Mane and Tail—

Covert's Saddlery Works..... 60¢/10¢

Compasses, Dividers, &c.

Ordinary Goods..... 75¢/5¢/75¢/10¢
 Bemis & Call Hdw. & Tool Co.:
 Dividers..... 65¢
 Calipers, Double..... 65¢
 Calipers, Inside or Outside..... 65¢
 Calipers, Wing..... 60¢
 Compasses..... 50¢

Conductor Pipe, Galva.—

L. C. L. to Dealers:

Territory. Nested. Not nested.
 A. Eastern..... 75¢/12¢/5¢ 75¢/7¢/5¢
 B. Eastern..... 75¢/10¢/7¢/5¢ 75¢/12¢/7¢/5¢
 Central..... 75¢/12¢/5¢ 75¢/5¢
 Southern..... 70¢/10¢/5¢ 70¢/10¢
 S. Western..... 70¢/12¢/5¢ 70¢/7¢/5¢
 Terms, 60 days; 2% cash 10 days. Factory
 shipments generally delivered.
 See also Eave Troughs.

Coolers, Water—

Gal., each..... 2 3 4 6 8
 Labrador..... \$1.20 \$1.50 \$1.80 \$2.10 \$2.70
 Gal..... 3 4 6 8
 Iceland, ea. \$1.80 \$2.10 \$2.40 \$3.00
 Gal..... 2 3 4 6 8
 Galv. Lined, ea. \$1.85 \$2.00 \$2.25 \$2.90 \$3.90
 25¢
 Gav. Lined, side handles..... 6 8
 Each..... \$1.95 \$2.15 \$2.40 \$3.30 \$4.15 25¢

Coopers' Tools—

See Tools, Coopers'.

Cord— Sash—

Braided, Drab..... 1b. 35¢
 Braided, White, Com. 1b. 21¢/22¢
 Cable Laid Italian..... 1b. A, 18¢; B, 16¢
 Common India..... 1b. 10¢/10¢/5¢
 Cotton Sash Cord, Twisted 11¢/16¢
 Patent Russia..... 1b. 14¢
 Cable Laid Russia..... 1b. 15¢
 India Hemp, Braided, 1b. 18¢
 India Hemp, Twisted, 1b. 12¢/13¢
 Patent India, Twisted, 1b. 12¢/13¢
 Anniston Cordage Co.: Braided Cotton.
 Old Glory, Nos. 7 to 12..... 1b 28¢
 Anniston, Nos. 7 to 12..... 1b 22¢
 Old Colony, Nos. 7 to 12..... 1b 22¢
 Anniston Drab, Nos. 7 to 12..... 1b 26¢
 Pearl Braided, cotton, No. 6, 1b.
 22¢; Nos. 7 to 12, 21¢
 Eddystone Braided, Nos. 7, 8, 9 and 10
 Eddystone Braided Cotton, No. 6..... 1b 24¢
 Eddystone Braided Cotton, No. 6..... 1b 25¢
 Harmony Cable Laid Italian, Nos. 7
 to 10..... 1b 23¢
 Peerless:
 Cable Laid Italian..... 16¢
 Cable Laid Russian..... 14¢
 Cable Laid India..... 12¢
 Braided India..... 18¢
 Samsom:
 Braided, Drab Cotton..... 1b 36¢
 Braided, Italian Hemp..... 1b 36¢
 Braided, Linen..... 1b 53¢
 Braided, White Cotton or Spot..... 1b 33¢
 Massachusetts, White..... 1b 28¢
 Massachusetts, Drab..... 1b 28¢
 Phoenix, White, Nos. 7 to 12..... 24¢
 No. 6 cords, 1¢ extra.
 Silver Lake:
 A quality, Drab..... 40¢
 A quality, White..... 35¢
 B quality, White..... 35¢
 B quality, White..... 30¢
 Italian Hemp..... 40¢
 Linen..... 57¢/4¢

Wire, Picture—

List Oct., '00..... 85¢/10¢/10¢/85¢/10¢/10¢/5¢
 Hendryx Standard Wire Picture Cord..... 85¢/10¢/5¢
 Grain..... 40¢/12¢/2¢

Cradles—

White Round Crayons, gr. 5 1/4¢/6¢

Cases, 100 gr., \$1.00, at factory.

D. M. Steward Mfg. Co.:
 Jumbo Crayons..... gr. 33¢/50¢
 Metal Workers' Crayons, gr. 25¢
 Soapstone Pencils, round, flat
 or square..... gr. 50¢
 Rolling Mill Crayons..... gr. 25¢
 Railroad Crayons (composition)
 gr. 2¢/00

Zelnicker's Lumber:
 Red, Blue, Green..... 1/2 gr. 65¢/50¢
 Black..... 1/2 gr. 40¢
 See also Chalk.

Crooks, Shepherds—

Fort Madison, Heavy..... 1/2 doz. \$7.00
 Fort Madison, Light..... 1/2 doz. \$6.50

Crow Bars—See Bars, Croir.**Cultivators—**

Victor Garden..... 50¢

Cutlery, Table—

International Silver Company:
 No. 12 M'd'm Knives, 1817, 1/2 doz. \$3.50
 Star, Eagle, Rogers & Hamilton
 and Anchor..... 1/2 doz. \$3.00
 Wm. Rogers & Son..... 1/2 doz. \$2.50

Cutters— Glass—

H. H. Mayhew Co..... 40¢
 Devil..... 50¢
 Smith & Hemenway Co..... 50¢
 Woodward..... 41¢

Meat and Food—

American..... 1 2 3 4 B 5
 Nos..... \$5 \$7 \$10 \$25 \$50 \$60
 Enterprise..... 5 10 12 22 32
 Each..... \$2 \$3 \$2.75 \$4.50 \$6
 Dixon's..... 1/2 doz. 30¢/10¢/40¢
 Nos..... 1 2 3 4
 Ideal..... \$14.00 \$17.00 \$19.00 \$30.00
 Little Giant..... 40¢/10¢/50¢
 Nos..... 305 310 312 320 322
 \$35.00 \$48.00 \$44.00 \$72.00 \$98.00
 N. E. Food Choppers..... 40¢
 New Triumph No. 605, 1/2 doz. \$24.00.
 Ruswin Food, No. 1, \$24.00, No. 2,
 \$27.00..... 45¢/10¢/10¢
 Woodruff's..... 1/2 doz. 30¢/10¢/40¢
 Nos..... 100 150
 Enterprise Beef Shavers..... 25¢/30¢

Slaw and Kraut—

Henry Diston & Sons:
 Slaw, Corn Grater, &c..... 40¢
 Kraut Cutters, 21 x 7, 20 x 8, 30
 x 8..... 55¢
 Kraut Cutters, 36 x 12, 40 x 12..... 60¢
 J. M. Mast Mfg. Co.:
 Slaw Cutters, 1 Knife..... 1/2 doz. \$3.00
 Combined Slaw Cutter and Corn
 Grater..... 1/2 doz. \$4.00
 Tupper & Dorsey Mfg. Co.:
 Kraut Cutters, 1 Knife..... 40¢
 Slaw Cutters, 1 Knife..... 1/2 gr. \$18¢/32¢
 Slaw Cutters, 2 Knife..... 1/2 gr. \$22¢/36¢

Tobacco—

All Iron, Cheap..... doz. \$1.25¢/1.50
 Enterprise..... doz. 50¢/30¢
 National, 1/2 doz., No. 1, \$21; No. 2,
 \$18..... doz. 40¢
 Sargent's, 1/2 doz., No. 2..... 60¢
 Sargent's, Nos. 12 and 21..... 60¢/10¢

Washer—

Appleton's, 1/2 doz., \$16.00..... 50¢/10¢/10¢

Diggers, Post Hole, &c.—

Dalbey Post Hole Auger, per doz. \$9.00
 Iwan's Improved Post Hole Auger..... 40¢/5¢
 Iwan's Vaughan Pattern Post Hole
 Augers..... 1/2 doz. \$8.25
 Iwan's Perfection Post Hole Digger..... 25¢
 Iwan's Split Handle Post Hole Dig-
 gers..... 1/2 doz. \$7.25
 Kohler's Universal..... 1/2 doz. \$15.00
 Kohler's Little Giant..... 1/2 doz. \$12.00
 Kohler's Hercules..... 1/2 doz. \$10.00
 Kohler's Invincible..... 1/2 doz. \$9.00
 Kohler's Rival..... 1/2 doz. \$9.00
 Kohler's Pioneer..... 1/2 doz. \$7.20
 Never-Break Post Hole Diggers, 1/2
 doz., \$24.00..... 60¢
 Samson, 1/2 doz. \$34.00..... 25¢

Dividers—See Compasses.**Doors, Screen—**

Phillips', style E, 7/8 in..... 1/2 doz. \$10.50
 Phillips', style 077, 7/8 in..... 1/2 doz. \$8.00
 Phillips', style x-y, 7/8 in..... 1/2 doz. \$11.00

Drawers, Money—

Tucker's Pat. Alarm Till No. 1, 1/2
 doz., \$18; No. 2, \$15; No. 3, \$12;
 No. 4, \$18.

Drawing Knives—

See Knives, Drawing.

Dressers, Emory Wheel—

Diamond Emory Wheel Dressers..... 35¢
 Diamond Wheel Dresser Cutters..... 35¢

Drills and Drill Stocks—

Common Blacksmiths' Drill,
 each..... \$1.50¢/1.75
 Breast, Millers Falls..... 15¢/10¢
 Breast, P. S. & W..... 10¢/5¢
 Goodell Automatic Drills, 40¢/50¢/10¢
 Johnson's Automatic Drills, Nos. 2
 and 3..... 16¢
 Johnson's Drill Points..... 16¢
 Millers Falls Automatic Drills..... 33¢/10¢
 Ratchet, Curtis & Curtis..... 25¢
 Ratchet, Parker's..... 40¢
 Ratchet, Weston's..... 33¢
 Ratchet, Whitcomb, P. S. & W. 50¢
 Whitney's Hand Drill No. 1, \$10.00
 Adjustable, No. 10, \$12.00..... 33¢/4¢

Twist Drills—

Bit Stock..... 60¢/10¢/60¢/10¢/10¢
 Taper and Straight Shank..... 60¢/10¢/60¢/10¢/5¢

Drivers, Screw—

Screw Driver Bits, per doz. 45¢/60¢
 Balsey's Screw Holder and Driver, 1/2
 doz., 2 1/2 in., \$8; 4 in., \$7.50; 6 in.,
 \$9
 Huck Bros.' Screw Driver Bits..... 40¢
 Champion..... 50¢
 Edison..... 60¢
 Fray's Hol. H'dle Sets, No. 3, \$12.50
 Gay's Double Action Ratchet..... 40¢/5¢
 Goodell's Auto..... 50¢/10¢/50¢/10¢/10¢/5¢
 Hurwood..... 40¢
 Mayhew's Black Handle..... 40¢
 Mayhew's Monarch..... 40¢/10¢
 Millers Falls, Nos. 20 and 21..... 25¢/10¢
 Millers Falls, Nos. 11, 12, 41, 12..... 15¢/10¢
 Never Turn..... 60¢
 New England Specialty Co..... 50¢
 Sargent & Co.'s:
 Nos. 1 and 60..... 50¢/10¢/10¢
 Nos. 50 and 55..... 6¢/10¢
 Nos. 20 and 40..... 70¢/10¢
 Smith & Hemenway Co..... 40¢/5¢
 H. D. Smith & Co.'s Perfect H'dle..... 40¢
 Stanley R. & L. Co.'s:
 No. 64, Varn. Handles..... 60¢/60¢/10¢/10¢
 No. 86..... 70¢/70¢/10¢/10¢
 Swan's:
 Nos. 65 to 68..... 50¢
 No. 49..... 40¢/10¢
 Nos. 25, 35 and 45..... 20¢/10¢/10¢

Eave Trough, Galvanized—

Territory. L. C. L.

A. Eastern..... 80¢/10¢/5¢
 B. Eastern..... 80¢/10¢/10¢
 Central..... 80¢/10¢/5¢
 Southern..... 80¢
 S. Western..... 75¢/10¢/10¢
 Terms—2% for cash. Factory ship-
 ments generally delivered.
 See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments:
 Plain Rd., and Cor., 2, 3 and
 4 in..... 75¢
 Plain Rd., and Cor., 5

Faucets—

Cork Lined.....	50¢/50¢10%
Metallic Key, Leather Lined.....	70¢/70¢10%
Red Cedar.....	70¢/70¢10%
Petroleum.....	70¢/70¢10%
B. & L. B. Co.:.....	60¢/60¢10%
Metal Key.....	60¢/60¢10%
Star.....	50¢/50¢10%
West Lock.....	50¢/50¢10%
John Sommer's Peerless Tin Key.....	50¢/50¢10%
John Sommer's Boss Tin Key.....	50¢/50¢10%
John Sommer's Victor Mtl. Key.....	50¢/50¢10%
John Sommer's Duplex Metal Key.....	60¢/60¢10%
John Sommer's Diamond Lock.....	60¢/60¢10%
John Sommer's I. X. L. Cork Lined.....	50¢/50¢10%
John Sommer's Reliable Cork Lined.....	50¢/50¢10%

John Sommer's Chicago Cork Lined.....	60¢/60¢10%
John Sommer's O. K. Cork Lined.....	50¢/50¢10%
John Sommer's No Brand, Cedar.....	40¢/40¢10%
John Sommer's Perfection, Cedar.....	40¢/40¢10%
McKenna, Brass.....	50¢/50¢10%
Burglar Proof, N. P.....	50¢/50¢10%
Improved, 1/4 and 1/2 inch.....	25¢/25¢10%

Self Measuring—

Enterprise, 1/2 doz. \$36.00.....	40¢/40¢10%
Lane's, 1/2 doz. \$36.00.....	40¢/40¢10%
National Measuring, 1/2 doz. \$36.00.....	40¢/40¢10%

Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List revised Nov. 1, 1899.

Best Brands.....	70¢/70¢10%
Standard Brands, 75¢/100¢/75¢/100¢	75¢/75¢10%
Lower Grade.....	75¢/75¢10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97.....	30%
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Fixtures, Fire Door—

Richards Mfg. Co.:.....	40.00
Universal, No. 101.....	40.00
Special, No. 101.....	40.00
Fusible Links.....	40.00
Expansion Bolts.....	50¢/50¢10%

Grindstone—

Net Prices:					
Inch	15	17	19	21	24
Per doz	\$2.15	2.85	3.25	3.75	4.50
P. S. & W. Co.	30¢	10¢	40¢		
Reading Hardware Co.					60¢
Sargent's					70¢
Stowell's Giant Grindstone Hanger					70¢
Stowell's Grindstone Fixtures, Extra					60¢
Heavy					104 10¢
Stowell's Grindstone Fixtures, Light					60 10¢

Fodder Squeezers—

See Compressors.

Forks—

Base Discounts Aug. 1, 1899, list:	
Hay, 2 tine.....	50¢/50¢10%
Boys' & Fish, 2 tine.....	50¢/50¢10%
Hay & Boys, 3 tine.....	60¢/60¢10%
Hay & Boys, 4 tine.....	66¢/66¢10%
Champion Hay.....	66¢/66¢10%
Hay & Header, long 3 tine.....	65¢/65¢10%
Header, 4 tine.....	65¢/65¢10%
Barley 4 & 5 tine, Steel.....	60¢/60¢10%
Manure, 4 tine.....	60¢/60¢10%
Manure, 6 & 6 tine.....	66¢/66¢10%
Spading.....	70¢/70¢10%
Potato Digger, 6 tine.....	65¢/65¢10%
Sugar Beet.....	40¢/40¢10%
Coke & Coal.....	40¢/40¢10%
Heavy Mill & Street.....	65¢/65¢10%
Iowa Dig-Ezy Potato.....	60¢/60¢10%
Victor, Hay.....	60¢/60¢10%
Victor, Manure.....	66¢/66¢10%
Victor, Header.....	66¢/66¢10%
Champion, Hay.....	66¢/66¢10%
Champion, Header.....	65¢/65¢10%
Champion, Manure.....	60¢/60¢10%
Columbia, Hay.....	60¢/60¢10%
Columbia, Manure.....	70¢/70¢10%
Columbia, Spading.....	70¢/70¢10%
Hawkeye Wood Barley.....	40¢/40¢10%
W. & C. Potato Digger.....	60¢/60¢10%
Acme Hay.....	60¢/60¢10%
Acme Manure, 4 tine.....	60¢/60¢10%
Dakota Header.....	60¢/60¢10%
Jackson Steel Barley.....	60¢/60¢10%
Kansas Header.....	65¢/65¢10%
W. & C. Favorite Wood Barley.....	40¢/40¢10%
Plated—See Spoons.	

Frames— Saw—

White, S'gt Bar, per doz. 75¢/80¢	
Red, S'gt Bar, per doz. \$1.00¢/1.25	
Red, Dbl. Brace, per doz. \$1.40¢/1.50	

Freezers, Ice Cream—

Qt.	1	2	3	4	6
Each.....	\$1.25	\$1.60	\$1.90	\$2.29	\$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.**Fuse— Per 100' Feet.**

Hemp.....	\$2.75
Cotton.....	3.20
Waterproof Sgl. Taped.....	3.65
Waterproof Dbl. Taped.....	4.40
Waterproof Tpl. Taped.....	5.15

Gates, Molasses and Oil—

Stebbins' Pattern, 80¢/10¢/80¢/10¢/5%	
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Gauges—

Marking, Mortise, do.....	50¢/50¢10%
Chapin-Stephens Co.:.....	50¢/50¢10%
Marking, Mortise, do.....	50¢/50¢10%
Scholl's Patent.....	50¢/50¢10%
Door Hangers.....	50¢/50¢10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....	30¢/30¢10%
Wire, Brown & Sharpe's.....	25¢/25¢10%
Wire, Morse's.....	25¢/25¢10%
Wire, P. S. & W. Co.....	30¢/30¢10%

Gimlets— Single Cut—

Nail, Metal, Asst. gro. \$1.40¢/1.50	
Spike, Metal, Asst. gro. \$2.80¢/3.50	
Nail, Wood Handled, Assorted, 1/2 gro. \$1.75¢/2.00	

Spike, Wood Handled, Assorted, gro. \$4.25¢/4.50	
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Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co.....	60¢/60¢10%
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Glue, Liquid Fish—

Bottles or Cans, with Brush.....

Cans (1/2 pts., pts., qts., 1/2 gal. gal.).....	25¢/25¢10%
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International Glue Co. (Martin's).....	25¢/25¢10%
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Grease, Axle—

Common Grade.....	gro. \$4.50¢/5.50
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Dixon's Everlasting, 10-lb pails, ea. \$5¢	
Dixon's Everlasting in boxes, 1 doz. 1 lb. \$1.20; 2 lb. \$2.00	

Grips, Nipple—

Perfect Nipple Grips.....	40¢/40¢10%
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Griddles, Soapstone—

Pike Mfg. Co.....	33¢/33¢10%
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Grindstones—

Bicycle Emery Grinder.....	\$6.50
Bicycle Grindstones, each.....	\$2.50¢/3.00
Pike Mfg. Co.:.....	
Improved Family Grindstones, per inch, 1/2 doz.....	\$2.00
Pike Mower and Tool Grinder, each.....	\$4.00
Velox Ball Bearing, Mounted, Angle Iron Frames, each.....	\$3.25

Halters and Ties—

Covert Mfg. Co.:.....	
Web.....	45¢/45¢10%
Jute Rope.....	50¢/50¢10%
Sisal Rope.....	35¢/35¢10%
Cotton Rope.....	45¢/45¢10%
Hemp Rope.....	45¢/45¢10%
Covert's Saddlery Works:.....	
Web and Leather Halters.....	70%
Jute and Manila Rope Halters.....	70%
Sisal Rope Halters.....	60¢/60¢10%
Jute, Manila and Cotton Rope Ties.....	70%
Sisal Rope Ties.....	60¢/60¢10%

Hammers—

Heller's Machinists'.....	40¢/40¢10%
Heller's Farmers'.....	40¢/40¢10%
Magnetic Tack, Nos. 1, 2, 3.....	\$1.25
\$1.50, \$1.75.....	40¢/40¢10%
Peck, Stow & Wilcox.....	40¢/40¢10%
Fayette R. Plumb:.....	
Plumb, A. E. Nail.....	33¢/33¢10%

Engineers' and B. S. Hand.....

50¢/75¢/50¢/50¢/10¢/75¢	
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Machinists' Hammers.....

50¢/50¢/50¢/50¢/10¢/50¢	
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Riveting and Tinner's.....

40¢/25¢/40¢/10¢/25¢	
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Sargent's C. S. New List.....

40%	
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Heavy Hammers and Sledges—

Under 3 lb., per lb. 50¢.....	80¢/80¢10%
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3 to 5 lb., per lb. 40¢.....	80¢/80¢10%
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Over 5 lb., per lb. 30¢.....	85¢/85¢10%
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Wilkinson's Smiths'.....	1 lb. 9¢/10¢
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Handles—**Agricultural Tool Handles**

Axe, Pick, do.....	60¢/60¢10%
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Hoe, Rake, do.....	45¢/45¢10%
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Fork, Shovel, Spade, do.....	45¢/45¢10%
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Long Handles.....	45¢/45¢10%
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D Handles.....	40%
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Cross-Cut Saw Handles—

Atkins'.....	40¢/40¢10%
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Champion.....	45¢/45¢10%
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Disston's.....	50%
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Mechanics' Tool Handles—

Auger, assorted.....	gro. \$2.50¢/2.85
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Brad Axl.....	gro. \$1.65¢/1.85
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Chisel Handles:	
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Apple Tanged Firmer, gro. assorted.....	\$2.40¢/2.55
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Hickory Tanged Firmer, gro. assorted.....	\$2.15¢/2.40
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Apple Socket Firmer, gro. assorted.....	\$1.75¢/1.95
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Hickory Socket Firmer, gro. assorted.....	\$1.45¢/1.60
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Hickory Socket Framing, gro. assorted.....	\$1.60¢/1.75
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File, assorted.....	gro. \$1.30¢/1.40
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Hammer, Hatchet, Axe, do.....	60¢/60¢10%
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Hand Saw, Varnished, doz. 80¢/85¢	
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Not Varnished, doz. 65¢/75¢	
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Plane Handles:

Jack, doz. 37¢; Jack, Bolted, 75¢	
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Fore, doz. 45¢; Fore, Bolted, 90¢	
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Chapin-Stephens Co.:.....	40¢/40¢10%
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Caring Tool.....	65¢/65¢10%
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Chisel.....	65¢/65¢10%
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File and Awl.....	65¢/65¢10%
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Saw and Plane.....	40¢/40¢10%
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Screw Driver.....	40¢/40¢10%
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Millers Falls Adj. and Hatchet Auger Handles.....	15¢/15¢10%
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Nicholson Simplicity File Handle.....	20¢/20¢10%
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Hangers—

NOTE—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, do.

Barn Door, New Pattern, Round Groove, Regular:

Inch.....	3	4	5	6	8
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Single Doz.....	\$0.90	1.25	1.60	1.95	2.50
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Barn Door, New England Pat-

tern, Check Back, Regular:

Inch.....	3	4	5	6
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Single Doz.....	\$1.30	1.85	2.50	3.00
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Allura Mfg. Co.:.....	
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Reliable, No. 1.....	per doz. \$8.00
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Reliable, No. 2.....	per doz. \$4.90
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Chicago Spring Butt Co.:.....	
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Friction.....	25%
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Oscillating.....	25%
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Big Twin.....	25%
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Chisnold & Moore Mfg. Co.:.....	
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Baggage Car Door.....	50%
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Elevator.....	30%
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Railroad.....	30%
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Cronk & Carrier Mfg. Co.:.....	
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Loose Axle.....	80¢/80¢10%
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Roller Bearing.....	70¢/70¢10%
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Griffin Mfg. Co.:.....	
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Solid Axle, No. 10, \$12.00.....	70%
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Roller Bearing, No. 11, \$15.00.....	70%
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Roller Bearing, Ex. Hy., No. 12, \$18.00.....	70%
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Hinge Hangers, \$16.00.....	60¢/60¢10%
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Lease Bros. Co.:.....	
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Parlor, Ball Bearing.....	\$4.00
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Parlor, Standard.....	\$3.15
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Parlor, No. 105.....	\$2.55
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Parlor, New Model.....	\$2.50
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Parlor, New Chapter.....	\$2.50
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Barn Door, Standard, 60¢/104¢	
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Hinged.....	net \$6.40
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Covered.....	60¢/60¢10%
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Special.....	70¢/70¢10%
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Lawrence Bros.:.....	
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Cleveland.....	60¢/60¢10%
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Wrought Iron Hinges—

Strap and T Hinges, &c., list

March 15, 1901:

Light Strap Hinges, .80¢ 5%	
Heavy Strap Hinges, .80¢ 20¢ 10%	
Light T Hinges, .75¢ 10¢ 5%	
Heavy T Hinges, .75¢ 5%	
Extra Heavy T Hinges, .80¢ 20%	
Hinge Hangers, .70%	
Cor. Heavy Strap, .80¢ 20¢ 10%	
Cor. E. Heavy Strap, .80¢ 20%	
Screw Hook { 6 to 12 in., .1b. 3 1/4¢	
and Strap. { 1 1/2 to 20 in., .1b. 3 1/4¢	
22 to 36 in., .1b. 2 1/4¢	
Screw Hook and Eye:	
3/4 to 1 inch, .1b. 6¢	
1/2 inch, .1b. 7¢	
3/4 inch, .1b. 9¢	

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers, .35%

Hods—Coal—

Inch	15	16	17	18
Galt. Open	\$2.50	2.75	3.00	3.25
Jap. Open	\$1.90	2.10	2.25	2.55
Galt. Funnel	\$3.00	3.30	3.60	3.90
Jap. Funnel	\$2.45	2.65	2.85	3.30

Masons, Etc.—Cleveland Wire Spring Co.:
Steel Mortar, each \$1.45
Steel Brick, each \$1.10**Hoes—Eye—**Scovill and Oval Pattern, .60¢ 10¢ 60¢ 10¢ 10%
Grub, list Feb. 23, 1899, .70¢ 10¢ 75¢ 10%
D. & H. Scovill, .35%**Handled—**

August 1, 1899, list.

Field and Garden, .70¢ 10%	
Smith's Patent, .50%	
Meadow & Rhode Island, .75%	
Black Diamond, .70¢ 10%	
Mortar and Street, .70¢ 10¢ 10%	
Planters', .75¢ 12 1/2%	
Cotton, .70¢ 10¢ 10%	
Cotton Chopper, .75¢ 12 1/2%	
Weeding Hoes, .66¢ 15%	
Steel Weeders, .66¢ 15%	
Malleable Weeders, .66¢ 15%	
Ft. Madison Cotton Hoe, .70¢ 10¢ 10%	
Ft. Madison Crescent Cultivator Hoe, .70¢ 10%	
Ft. Madison Mattock Hoes: .70¢ 10%	
Warren Hoe, .64¢ 10%	
W. & C. Iron Hoe, .75¢ 12 1/2%	
B. B. 6 in. Cultivator Hoe, .43.15	
B. B. 6 in. in., .43.35	
Acme Weeding, .43.35	
W. & C. L'ning Shuffler Hoe, .43.85	
Kretzinger's Cut Easy, .70¢ 10%	
Warren Hoe, .64¢ 10%	
W. & C. Iron Hoe, .75¢ 12 1/2%	
B. B. 6 in. Cultivator Hoe, .43.15	
B. B. 6 in. in., .43.35	
Acme Weeding, .43.35	
W. & C. L'ning Shuffler Hoe, .43.85	

Hoisting Apparatus—

See Machines, Hoisting.

Holders—Bit—

Angular, 3 doz. \$24.00, .45¢ 10%

Door—Empire, .50%
Bardsley's, .45%**File and Tool—**Nicholson File Holders and File
Holders, .33¢ 10¢ 40%**Hooks—Cast Iron—**

Bird Cage, Reading, .60%	
Bird Cage, Sargent's List, .60¢ 10%	
Ceiling, Sargent's List, .50¢ 10¢ 10%	
Clothes Line, Reading List, .60¢ 10%	
Clothes Line, Sargent's List, .50¢ 20¢ 10%	
Coat and Hat, Sargent's List, .50¢ 10%	
Clothes Line, Stowell's, .70%	
Coat and Hat, Reading, .45¢ 20%	
Coat and Hat, Stowell's, .70%	
Coat and Hat, Wrightsville, .65%	
Harness, Reading List, .65%	
Harness, Stowell's, .60%	
School House, Stowell's, .70%	

Wire—Belt, .80¢—%
Wire C. & H. Hooks, .75¢ 10¢ 75¢ 10¢ 5%

Atlas, Coat and Hat:	
Single Cases, .75%	
10 Case Lots, .75¢ 10%	
Columbian Hdw. Co. Gem, .60¢ 10%	
Parker Wire Goods Co. King, .75¢ 10%	
Van Wagner, Coat and Hat, .70%	
Western W. G. Co. Molding, .75%	
Wire Goods Co.:	
Acme, .60¢ 10%	
Chief, .70%	
Crown, .70¢ 10%	
Czar, .70¢ 10%	
Czar Harness, .60¢ 10%	

Wrought Iron—Box, 6 in., per doz., \$1.00; 8 in.,
\$1.25; 10 in., \$2.50.
Cotton, .40¢ 10¢ 10%
Wrought Staples, .40¢ 10%
See Wrought Goods.**Miscellaneous—**

Hooks, Bench, see Stops, Bench.	
Bush, Light, doz. \$4.75; Medium, \$5.35; Heavy, \$6.25	
Grass, .No. 1	2 3 4
Best	\$1.50 1.75 2.00
Common	\$1.30 1.50 1.75
Potato and Manure, .60¢ 15%	
Whiffletree, .1b. 5¢ 10¢ 10%	
Hooks and Eyes:	
Brass, .60¢ 10¢ 10¢ 70%	
Malleable Iron, .70¢ 5¢ 70¢ 10%	
Covert Mfg. Co. Gate and Scuttle Hooks, .35%	
Covert Saddlery Works' Self Locking Gate and Door Hook, .60%	

Ft. Madison Cut-Easy Corn Hooks,
per doz. \$3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.**Horse Nails—**

See Nails, Horse.

Horseshoes—

See Shoes, Horse.

Hose, Rubber—

Garden Hose, 3/4-inch:	
Competition, .ft. 4 1/4¢ 5¢	
3-ply Standard, .ft. 6 1/4¢ 7¢	
4-ply Standard, .ft. 7 1/4¢ 8¢	
3-ply extra, .ft. 8 1/4¢ 9¢	
4-ply extra, .ft. 10 1/4¢ 11¢	
Cotton Garden, 3/4-in. coupled:	
Low Grade, .ft. 6¢ 7¢	
Fair Quality, .ft. 8¢ 9¢	

Irons—Sad—

From 4 to 10, .1b. 2 1/4¢ 3¢	
B. B. Sad Irons, .1b. 3 1/4¢ 4¢	
Chinese Laundry, .1b. 4 1/4¢ 5¢	
Chinese Sad, .1b. 4 1/4¢ 5¢	
Mrs. Potts', cents per set:	
No. 1, 50 55 60 65	
No. 2, 62 59 72 69	
Tin'd Tops, 65 62 75 72	
New England Pressing, .1b. 3 1/4¢ 4¢	

Pinking—

Pinking Irons, .50¢ 50¢ 60¢

Soldering—

Soldering Coppers, 2 1/2 & 3, 19¢ 20¢

Jacks, Wagon—Covert Mfg. Co.:
Auto Screw, .30¢ 5%

Steel, .45¢ 2%

Covert's Saddlery Works:
Daisy, .60¢ 10%

Victor, .60%

Lockport, .50%

Lane's Steel, .50¢ 10¢ 5%

Richards' Tiger Steel, No. 130, .40%

Kettles—

Brass, Spun, Plain, .20¢ 25%

Enameled and Cast Iron—See Ware,
Hollow.**Knives—****Butcher, Kitchen, &c.—**

Foster Bros' Butcher, &c., .30%

Smith & Hemenway Co., .40¢ 10%

Wilkinson Shear & Cutlery Co., .50%

Corn—

Withington Acme, 3 doz. \$2.65;

Dent, \$2.75; Adj. Serrated, \$2.50;

Serrated, \$2.10; Yankee No. 1, \$1.20;

Yankee No. 2, \$1.15.

Drawing—

Standard List, .70¢ 10¢ 75¢ 10%

C. E. Jennings & Co. Nos. 45, 46, 60

Jennings & Griffin, Nos. 41, 42, .60%

Ohio Tool Co.'s, .70%

Swan's, .70¢ 10¢ 2 1/2%

Watrous, .16%

L. & I. J. White, .20¢ 5¢ 25%

Hay and Straw—

Serrated Edge, .per doz. \$5.50

Iwan's Sickle Edge, .per doz. \$9.50

Iwan's Serrated, .per doz. \$10.00

Mincing—

Buffalo, .per doz. \$13.00

Miscellaneous—

Farriers', .per doz. \$3.00 3¢ 25

Westenholm's, .per doz. \$3.00 3¢ 25

Knobs—Base, 2 1/2-inch, Birch, or Maple,
Rubber tip, .gro. \$1.10 1¢ 15

Carriage, Jap., all sizes, .gro. 40¢ 15¢

Door, Mineral, .doz. 65¢ 10¢ 15¢

Door, Por. Jap'd, .doz. 70¢ 75¢

Door, Por. Nickel, .doz. \$2.05 1¢ 15

Bardsley's Wood Door, Shutters, &c., 15¢

Picture, Sargent's, .60¢ 10¢ 10%

Lacing, Leather—

See Belting, Leather—

Ladders, Store, &c.—

Lane's Store, .25%

Myers' Noiseless Store Ladders, .50%

Richards Mfg. Co.:
Improved Noiseless, No. 112, .40%

Climax Shelf, No. 113, .40%

Trolley, No. 108, .40%

Ladies, Melting—

L. & G. Mfg. Co. (low list), .25%

P. S. & W., .60%

Reed, .60%

Sargent's, .60¢ 10%

Lanterns—Tubular—

Regular Tubular, No. 0, .doz. \$4.55 1¢ 75

Lift Tubular, No. 0, .doz. \$4.75 1¢ 25

Hinge Tubular, No. 0, .doz. \$4.75 1¢ 25

Other Styles, .40¢ 10¢ 10¢ 5%

Bull's Eye Police—

No. 1, 2 1/2-inch, .doz. \$2.50 1¢ 75

No. 2, 3-inch, .doz. \$2.75 1¢ 30

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron, .50%

Stowell's Badger, Cast Iron, .50%

Latches—Thumb—

Roggin's Latches, with screw, .doz. 35¢ 40¢

Door—

Richards' Bull Dog, Heavy No. 125, 40¢

Richards' Trump, No. 127, .50%

Leaders, Cattle—

Small, .doz. 55¢; large, 60¢

Covert Mfg. Co., .35%

Lifters, Transom—

R. & E., .33 1/4%

Lines—

Wire Clothes, Nos. 18	19	20
100 feet, .doz. \$2.20	2.00	1.65
75 feet, .doz. \$1.80	1.70	1.30
Samson Cordage Works:		
Solid Braided Chalk, Nos. 0 to 3, 40¢		
Silver Lake Braided Chalk, No. 0, \$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50		
Masons' Lines, Shade Cord, &c.:		
White Cotton, No. 3 1/2, \$1.50; No. 4, \$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2, \$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75;		
Linen, No. 3 1/2, \$2.50; No. 4, \$3.50; No. 4 1/2, \$4.50		
Tent and Awning Lines: No. 5, White Cotton, \$7.50; Drab Cotton, \$8.50		
Clothes Lines, White Cotton: 50 ft., \$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75 ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75; 100 ft., \$5.25		
Anniston Waterproof Clothes, 50 ft., \$2.00; 60 ft., \$2.20; 70 ft., \$2.40; 75 ft., \$2.60; 80 ft., \$2.80; 90 ft., \$3.00; 100 ft., \$3.20		
Lock		
Empire, \$14.00; Advance, \$13.50; Oriole, \$20.00; Albemarle, \$13.50; Eclipse, \$12.50; Chicago, \$11.00; Standard, \$10.00; Columbia, \$8.50; Allston, \$12.50; Calhoun, \$11.00.		

Locks—Cabinet—

Cabinet Locks, .33 1/2¢ 33 1/2¢ 67 1/2¢

Door Locks, Latches, &c.—NOTE—Net Prices are very often made
on these goods.

Reading Hardware Co., .45¢ 20%

R. & E. Mfg. Co., .40%

Sargent & Co., .40¢ 10%

Stowell's Steel Door Latches, .50%

Elevator—

Stowell's, .50%

Padlocks—

Wrought Iron, .75¢ 10¢ 5¢ 80¢ 5%

R. & E. Mfg. Co. Wrought Steel and
Brass, .75¢ 75¢ 10%**Sash, &c.—**

Ives' Patent, .62 1/2%

Bronze and Brass, .62 1/2%

Crescent, .50¢ 10%

Iron, .62 1/2%

Window Ventilating, .60%

Robison Patent Ventilating Sash,
Wrought Bronze and Brass, .55%

Wrought Steel, .55%

Pullman Patent Ventilating Lock, .25%

Reading, .60%

Machines—Boring—

Com. Up'r't, without Augers, \$2.00

Com. Ang'r, without Augers, \$2.25

Without Augers:

R. & E. Mfg. Co.: Upright, Angular,

Improved No. 3, \$4.25 No. 1, \$5.00

Improved No. 4, \$3.75 No. 2, \$3.38

Improved No. 5, \$2.75

Jennings, Nos. 1 and 4, .35¢ 5%

Millers' Falls, .57%

Snell's, Rice's Pat. 2.50 2.75

Corking—

Reisinger Invinible Hand Power, .per doz. \$48.00

Fence—

Williams' Fence Machines, each, \$5.50

Hoisting—Moore's Anti-Friction Differential
Pulley Block, .30%Moore's Hand Hoist, with Lock
Brake, .20%**Ice Cutting—**

Chandler's, .12 1/2%

Washing—

Boss Washing Machine Co.: Per doz.

Champion Rotary Banner No. 1, \$54.00

Standard Champion No. 1, \$48.00

Standard Perfection, \$36.00

Cinti Square Western, \$30.00

Uneda American, Round, \$29.00

Mallets—

Hickory, .45¢ 5¢ 50%

Lignumvite, .45¢ 5¢ 50%

Tinnert's Hickory and Apple-
wood, .doz. 50¢ 55%**Mangers, Stable—**

Sweet Iron Works, .50%

Mashers, Vegetable—

Western W. G. Co., Potato, .60¢ 10%

Mats, Door—

Elastic Steel (W. G. Co.), .10%

Mattocks—

Tarred Paper—

1 ply (roll 300 sq. ft.), ton.....	\$32.50@35.00
2 ply, roll 108 sq. ft.....	55@60¢
3 ply, roll 108 sq. ft.....	78@80¢
Slater's Felt (roll 500 sq. ft.).....	75¢

NOTE.—Above prices often include delivery, and are for Eastern territory, where prices are controlled by agreement between the manufacturers. In open territory much lower prices are current.

R. M. Stone Surface Roofing
(roll 110 sq. ft.).....\$2.75

Sand and Emery—

Flint Paper and Cloth.....60@100¢
Garnet Paper and Cloth.....25¢
Emery Paper and Cloth.....50¢@100¢

Parers—Apple—

Advance.....	doz. \$4.00
Baldwin.....	doz. \$4.00
Bonanza Improved.....	each \$6.50
Daisy.....	doz. \$4.00
Dandy.....	each \$7.50
Eureka Improved.....	doz. \$15.00
Family Bay State.....	doz. \$20.00
Improved Bay State.....	doz. \$36.00
Little Star.....	doz. \$5.00
New Lightning.....	doz. \$7.00
Reading 72.....	doz. \$3.25
Reading 75.....	doz. \$6.25
Rocking Table.....	doz. \$6.00
Turn Table 78.....	doz. \$6.00
White Mountain.....	doz. \$5.00

Potato—

Saratoga.....	doz. \$7.00
White Mountain.....	doz. \$6.00

Picks and Mattocks—

List Feb. 23, 1899.....70¢@100¢@75¢@100¢

Pinking Irons—

See Irons, Pinking.

Pins, Escutcheon—

Brass.....60¢@100¢@100¢
Iron, list Nov. 11, '85.....60¢@100¢

Pipe, Cast Iron Soil—

Standard, 2-6 in.....50¢@100¢
Extra Heavy, 2-6 in.....65¢
Fittings.....70¢

Pipe, Merchant—

Carload Lots.
Steel.
Blk. Galv. Blk. Galv.

1/4 & 1/2 in.....	69¢	53¢	67¢	51¢
3/4 & 1 in.....	73¢	61¢	71¢	59¢
1 & 1 1/2 in.....	77¢	67¢	75 1/2¢	65 1/2¢
7 to 12 in.....	72¢	57¢	70 1/2¢	55¢

Pipe, Sewer—

Jobbers' Prices—
Standard Pipe and Fittings, 2 to 24 in.:

New England.....	67¢
New York and New Jersey.....	70¢
Maryland, Delaware, E. Pa.....	72¢
West. Pa. and West Va.....	73¢
Virginia.....	75¢
Ohio, Michigan and Ky.....	75¢
Indiana.....	77¢

NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:
6 in., per 100 joints.....\$7.00 \$8.00
5 in., per 100 joints.....7.50 8.50
7 in., per 100 joints.....8.50 9.50

Planes and Plane Irons—

Wood Planes—
Bench, First qual.....40¢@100¢@100¢
Bench, Second qual.....50¢@100¢@100¢
Molding.....33 1/2¢@50¢@100¢
Bailey's (Stanley R. & L. Co.).....50¢@100¢@100¢

Chapin-Stephens Co.:
Bench, First Quality.....40¢@100¢@100¢
Bench, Second Quality.....50¢@100¢@100¢
Molding.....33 1/2¢@50¢@100¢
Toy and German.....40¢@100¢@100¢
Chapin's.....60¢
Ohio Tool Co.:
Bench, First Quality.....40¢@100¢@100¢
Bench, Second Quality.....50¢@100¢@100¢
Molding.....33 1/2¢@50¢@100¢
Adjustable Wood Bottom.....60¢
Union.....60¢

Iron Planes—

Bailey's (Stanley R. & L. Co.).....25¢@100¢@100¢
Chapin's Iron Planes.....50¢@100¢@100¢
Miscellaneous Planes (Stanley R. & L. Co.).....20¢@100¢@100¢
Ohio Tool Co.'s Iron Planes.....60¢
Sargent's.....60¢@100¢@100¢
Union.....60¢

Plane Irons—

Wood Bench Plane Irons.....30¢@50¢@100¢
Buck Bros.....30¢@30¢@100¢
Chapin-Stephens Co.....30¢@30¢@100¢
Ohio Tool Co.....30¢
Stanley R. & L. Co.....20¢@100¢@100¢
Union.....50¢
L. & J. White.....20¢@50¢@100¢

Planters, Corn, Hand—

Kohler's Eclipse.....doz. \$8.50

Plates—

Felton.....lb. 3 1/4¢@4¢
Self-Sealing Pie Plates (S. S. Co.).....doz. \$2.00.....50¢

Pliers and Nippers—

Button Pliers.....75¢@100¢@80¢
Gas Burner, per doz., 5 in., \$1.25
@ \$1.30; 6 in., \$1.45 @ \$1.50.
Gas Pipe.....7 8 10 12-in.
\$2.00 \$2.25 \$3.00 \$3.75

Acme Nippers.....50¢@50¢@50¢
Cronk & Carrier Mfg. Co.:
American Button.....75¢@100¢
Cronk's.....60¢
Improved Button.....60¢@100¢
Stub's Pattern.....50¢
Combination and others.....33 1/2¢
Heller's Farriers' Nippers, Pincers and Tools.....40¢@100¢@100¢@100¢

P. S. & W. Timmers' Cutting Nippers
Swedish Side, End and Diagonal Cutting Pliers.....50¢
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40¢

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels.....30¢@30¢@100¢
Chapin's Imp. Brass Cor. 40¢@100¢@100¢
Pocket Levels.....30¢@30¢@100¢
Disston's Plumbs and Levels.....70¢
Disston's Pocket Levels.....70¢
C. E. Jennings & Co.'s Iron, Adjustable.....40¢@75¢
Stanley R. & L. Co. 30¢@100¢@100¢
Stanley's Duplex.....20¢@100¢@100¢
Woods' Extension.....33 1/2¢

Poachers, Egg—

Buffalo Steam Egg Poachers, do doz. \$3.00; No. 2, \$3.00; No. 3, \$3.00; No. 4, \$12.00.....50¢

Points, Glaziers—

Bulk and 1-lb. papers.....7b. 8¢
1/2-lb. papers.....7b. 8¢
1/4-lb. papers.....7b. 9 1/2¢

Pokes, Animal—

Ft. Madison Hawkeye.....doz. \$3.25
Ft. Madison Western.....doz. \$4.00

Police Goods—

Manufacturers' Lists.....25¢@25¢@5¢
Tower's.....25¢

Polish—Metal—

Prestoline Liquid, No. 1 (1/4 pt.), do doz. \$3.00; No. 2 (1 qt.), \$3.75.....40¢
Prestoline Paste.....40¢@100¢
George William Hoffman:

U. S. Metal Polish Paste, 3 oz. boxes, do doz. 50¢; do doz. \$4.50;
1/2 lb boxes, do doz. \$1.25; 1 lb boxes, do doz. \$2.25.

U. S. Liquid, 3 oz. cans, do doz. \$1.25; do doz. \$12.00.

Barkeepers' Friend Metal Polish, do doz. \$1.75; do doz. \$18.00.

Wynn's White Silk, 1/2 pt. cans, do doz. \$2.00.

Stove—

Black Eagle Benzine Paste, 5 lb cans, do doz. \$1.50;
do doz. \$1.50.

Black Eagle, Liquid, 1/2 pt. cans, do doz. \$1.50;
do doz. \$1.50.

Black Jack Paste, 1/2 lb cans, do doz. \$1.50;
do doz. \$1.50.

Black Kid Paste, 5 lb cans, do doz. \$1.50;
do doz. \$1.50.

Ladd's Black Beauty, gr. \$10.00.....50¢
Joseph Dixon's, gr. \$5.75.....50¢
Dixon's Plumbago.....gr. \$2.50
Firestone.....gr. \$2.50
Gem, gr. \$4.50.....gr. \$3.50
Jet Black.....gr. \$3.50
Peerless Iron Enamel, 10 oz. cans, do doz. \$1.50

Wynn's:

Black Silk, 5 lb pail.....each 70¢
Black Silk, 1/2 lb box.....each \$1.00
Black Silk, 5 oz. box.....doz. \$0.75
Black Silk, 1/2 pt. liq.....doz. \$1.00

Poppers, Corn—

1 qt., Square.....gro. \$9.00
1 qt., Round.....gro. \$10.00
1 1/2 qt., Square.....gro. \$11.00
2 qt., Square.....gro. \$13.00

Post Hole and Tree Augers and Diggers—

See also Diggers, Post Hole, &c.

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢;
6 ft., 46¢; 6 1/2 ft., 48¢;
Steel Hitching Posts.....each \$1.30

Potato Parers—

See Parers, Potato.

Pots, Glue—

Enameled.....40¢
Pinned.....35¢

Powder—

In Canisters:

Duck, 1 lb.....each 45¢
Fine Sporting, 1 lb.....each 75¢
Rifle, 1/2 lb.....each 15¢
Rifle, 1 lb.....each 25¢

King's Semi-Smokeless:

Keg (25 lb bulk).....\$6.50
Half Keg (12 1/2 lb bulk).....\$3.50
Quarter Keg (6 1/4 lb bulk).....\$1.90
Case 24 (1 lb cans bulk).....\$3.50
Half case (1 lb cans bulk).....\$4.50

King's Smokeless:

Keg (25 lb bulk).....\$12.00 \$15.00
Half Keg (12 1/2 lb bulk).....6.25 7.75
Quarter Keg (6 1/4 lb bulk).....3.25 4.00
Case 24 (1 lb cans bulk).....14.00 17.00
Half case 12 (1 lb c. bk.).....7.25 8.75
Robin Hood Sm'less Shot Gun.....50¢@20¢

Presses—

Fruit and Jelly—
Enterprise Mfg. Co.....20¢@25¢

Seal Presses—

Morrill's No. 1, do doz., \$20.00.....50¢

Pruning Hooks and Shears—

See Shears.

Pullers, Cork—

Invincible Cork Puller.....\$21.00

Pullers, Nail—

Cyclops.....50¢
Miller's Falls, No. 3, do doz., \$12.00;
33 1/2¢@100¢

Morrill's No. 1, Nail Puller, do doz. \$20.00.....50¢
Pearson No. 1, Cyclone Spike Puller, each \$30.00.....50¢
Pelican, do doz. \$9.00.....40¢@100¢
Scranton, Case Lots: a

No. 2B (large).....\$5.50
No. 3B (small).....\$5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots.....do doz. \$6.00
Diamond B, No. 3, case lots.....do doz. \$5.50
Giant No. 1, do doz. \$18; No. 2, \$16.50; No. 3, \$15.....40¢

Pulleys, Single Wheel—

Inch.....2 2 1/2 3
Aining, doz.....\$0.55 .85 1.15
Hay Fork, Swivel or Solid Eye,
doz., 4 in., \$1.05; 5 in., \$1.35

Inch.....2 2 1/2 2 1/2
Hot House, doz.....\$0.70 .90 1.25

Inch.....1 1/4 1 1/2 1 3/4 2
Screw, doz.....\$0.16 .19 .23 .30

Inch.....1 1/4 2 2 1/2 2 1/2
Side, doz.....\$0.30 .40 .55 .63

Inch.....1 1/4 1 3/4 2 2 1/2
Tackle, doz.....\$0.30 .42 .58 1.00

Stowell's:
Ceiling or End, Anti-Friction.....60¢@100¢
Dumb Waiter, Anti-Friction.....60¢@100¢
Electric Light.....60¢
Side, Anti-Friction.....60¢@100¢

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1 1/4 and 2 in.....16¢@19¢
Auger Mortise, no Face Plate, per doz, 1 1/4 and 2 in.....16¢@19¢
Acme.....1 1/4 in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 1, 2 in., 19¢

Grand Rapids All Steel Noiseless.....50¢
Ideal.....70¢@100¢
Niagara.....1 1/4 in., 16¢; 2 in., 19¢
No. 28, Troy.....1 1/4 in., 14 1/2¢; 2 in., 16 1/2¢
Star.....1 1/4 in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern.....60¢@100¢@100¢
Pitcher Spout.....80¢@100¢
Wood Pumps, Tubing, &c.....40¢@50¢
Barnes Dbl. Acting (low list).....50¢@100¢
Barnes Pitcher Spout.....80¢
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co.....\$16.00
Daisy Spray Pump.....doz. \$7.20
Flint & Walling's, Fast Mail Hand, (low list).....35¢
Flint & Walling's Fast Mail (low list).....55¢
Flint & Walling's Tight Top Pitcher.....50¢
National Specialty Mfg. Co., Measuring, \$6.00.....30¢
Mechanical Sprayer.....\$7.20
Myers' Pumps (low list).....50¢
Myers' Power Pumps.....50¢
Myers' Spray Pumps.....50¢

Pump Leathers—

Plunger and Lower Valve—Per gro.:
Inch.....2 2 1/2 2 1/2 2 1/2
\$2.20 2.50 2.75 3.00
Inch.....3 3 1/4 3 1/4 3 1/4
\$3.30 3.60 3.85 4.10 4.40
Plunger Cup Leathers—Per 100:
Inch.....2 1/2 3 3 1/4 4
\$2.75 3.85 5.00 6.00

Punches—

Saddlers' or Drive, good.....doz. 50¢@75¢
Spring, single tube, good quality.....\$1.75@2.00
Revolving (4 tubes).....doz. \$3.50@3.75

Bemis & Call Co.'s Cast Stl Drive.....55¢
Bemis & Call Co.'s Check.....55¢
Morrill's No. 1 (A.B.C.), do doz. \$15.50;
No. 2, do doz. \$22.50.....50¢
Hercules, each \$7.50.....50¢
Niagara Hollow Punches.....40¢
Niagara Solid Punches.....55¢@50¢
Steel Screw, B. & L. Mfg. Co.....50¢
Timmers' Hollow, P. S. & W. Co. 35¢@35¢
Timmers' Solid, P. S. & W. Co., do doz. \$1.44.....60¢

Rail—Barn Door, &c.—

Cast Iron Barn Door; Flange
Screw Holes for Rd. Groove
Wheels:
1/2 3/4 1 in.
\$1.70 \$2.10 \$3.00 100 feet.
Angular for Sq. Groove Wheels:
Small. Med. Large.
\$1.50 \$1.90 \$2.60 100 feet.
Sliding Door, Iron Painted.....2 1/2¢@2 1/2¢
Sliding Door, Wrought Brass,
1 1/2 in., lb., 36¢.....30¢
Althoff Mfg. Co.:
No. 1, Reliable Hgr. Track, do ft. 5 1/2¢
No. 2, Reliable Hgr. Track, do ft. 7¢
Cronk's:
Double Braced Steel Rail.....do ft. 3¢
O. N. T. Rail.....2 1/2¢
Griffin's:
xx, do 100 ft., 1 x 3-16 in., \$3.00;
1 1/2 x 3-16 in., 3.50.
Hinged Hanger, do 100 ft., 1 x 3-16 in., \$3.10; 1 1/2 x 3-16 in., \$3.60.
Lane's:
Hinged Track, do 100 ft., 1 in., \$3.70;
1 1/2 in., \$4.40.
O. N. T. do 100 ft., 1 in., \$2.75; 1 1/2 in., \$3.50; 1 3/4 in., \$4.00.
Standard, 1 1/2 in., do 100 ft. \$4.00
Lawrence Bros.:
do 100 ft. No. 201, \$4.00; No. 202, \$4.40.
New York, 1 x 3-16 in., do 100 ft. \$2.75
McKinney's:
Hinged Hanger Rail, do ft. 11¢, 50¢
None Better.....do ft. 3 1/4¢
Standard.....do ft. 4¢
Myers' Stayon Track.....60¢
Richards' Mfg. Co.:
Common 1 x 3-16 in., \$2.75; 1 1/2 x 3-16 in., \$3.50; 1 3/4 x 3-16 in., \$4.40
Fire Door Track, do ft., 2 1/2 x 3/4, 1 1/2 x 3/4, 9¢
Lag Screw Rail, No. 65.....40¢
Gauge Trolley Track, do ft., No. 31, 10¢; No. 32, 15¢; No. 33, 24¢
Safety Door Hanger Co.'s Storm King Safety.....60¢
Safety Door Hanger Co.'s U. S. Standard.....60¢
Stowell's:
Cast Rail.....do ft. 1 1/4¢
Steel Rail, Plain.....do ft. 25¢
Wrought Bracket, 1 1/2 x 3-16 in., do ft. 3¢
Wrought Bracket, 1 1/2 x 5-16 in., do ft. 7¢
Sweet's Hylo, do ft. 11¢.....60¢
P. L. B. Steel Rail.....do 100 ft. \$3.00
No. 0, 1 x 3-16 in., do 100 ft. \$2.75

Rakes—

Net Prices, Malleable Rakes:
10 12 14 16-tooth
Shank.....\$1.50 1.60 1.75 1.85
Socket.....\$1.65 1.80 1.95 2.10

Steel, Garden and Gravel, Aug.
1, '99, List.....70¢
Malleable Iron, Garden.....70¢@100¢
Lawn Rakes, M'l Head, per doz.
20 teeth.....\$3.25@3.50
24 teeth.....\$3.50@3.75
Weldless Steel Garden.....75¢@50¢
Fort Madison Red Head Lawn.....\$3.25
Fort Madison Blue Head Lawn.....\$2.70
Jackson Lawn, 29 and 30 teeth, do doz., net.....\$4.25
Kohler's:
Lawn Queen, 20-tooth.....do doz. \$3.45
Lawn Queen, 24-tooth.....do doz. \$3.60
Paragon, 20-tooth.....do doz. \$2.75
Paragon, 24-tooth.....do doz. \$3.00
Steel Garden, 14-tooth.....do doz. \$2.88
Malleable Garden, 14-tooth, do doz. \$1.75@2.00

Rasps, Horse—

Diston's.....75¢
Heller Bros.....70¢@70¢@100¢
McCaffrey's American St'd.....60¢@100¢
New Nicholson.....70¢@100¢
See also Files.

Razors—

Boracic.....60¢
Fox Razors, No. 42.....do doz. \$20.00
Fox Razors, No. 44.....do doz. \$20.00
Fox Razors, No. 82, Platina.....do doz. \$25.00
Kohler's:
Red Devil.....do doz. 60¢
Silberstein:
Carbo Magnetic.....\$18.00
Griffon, No. 65.....\$15.00
Griffon, No. 60.....\$12.00
All other Razors.....40¢

Safety Razors—

Silberstein.....40¢

Reels, Fishing—

Hendryx:
M 6 Q 6 A 6 B 6 M 9 1/4 M 16,
Q 16, A 16, B 16, 4008, Rubber,
Popolo, Nickered Popolo.....20¢
Aluminum German Silr., Bronze.....25¢
1240 N, 124 N.....20¢
3004 N, 96 N, 6 RM, G 9.....25¢
4 N, 6 PN, 24 N, 26 PN.....20¢
2904 PN.....33 1/2¢
0924 N.....33 1/2¢
02904 N.....33 1/2¢
802 N, 2904 N, 94 PN.....33 1/2¢
986 PN, 2904 N.....25¢
5009 PN, 5009 N.....20¢
Competitor, 102 P, 102 PN, 202 P,
202 PN, 102 PR, 202 PR.....20¢
304 P, 304 PN, 00304 P, 00304 PN.....33 1/2¢

Registers—List July 1, 1903.

Black Jap.....do doz. 75¢@100¢
White Jap.....do doz. 75¢@100¢
Bronzed.....do doz. 75¢@100¢
Nickel Plated.....do doz. 75¢@100¢
Electro Plated.....do doz. 75¢@100¢

Revolvers—

Single Action.....85¢@90¢
Double Action, except 44 cal. \$1.90
Double Action, 44 caliber.....\$2.05
Automatic.....\$3.60
Hammerless.....\$4.10

NOTE.—Jobbers frequently cut the above prices of manufacturers for small trade.

Riddles, Hardware Grade

16 in.....per doz. \$2.25@2.50
17 in.....per doz. \$2.50@2.75
18 in.....per doz. \$2.75@3.00

Sisal, Tarred, Medium Lath
Yarn:
Mixed 1b. 7¢
Pure 1b. 8½¢
Cotton Rope:
Best, ¼-in. and larger 15½¢
Medium, ¼-in. and larger 13½¢
Common, ¼-in. and larger 10½¢
Jute Rope:
Thread No. 1, ¼-in. & up. 1b. 6¢
Thread No. 2, ¼-in. & up. 1b. 5½¢
Wool Twine 1b. 5½¢
Old Colony Manila Transmission
Rope 1b 17½¢

Wire Rope—
Galvanized 47½¢
Plain 55¢

Ropes, Hammocks—
Covert Mfg. Co.:
Jute 50¢
Sisal 35¢
Covert Saddlery Works 60¢

Rules—
Boxwood 60¢
Ivory 35¢
Chapin-Stephens Co.:
Boxwood 60¢
Ivory 35¢
Miscellaneous 50¢
Combination 10¢
Stationers' 10¢
Keuffel & Esser Co.:
Folding, Wood 35¢
Folding, Steel 33½¢
Lufkin's Steel 50¢
Lufkin's Lumber 70¢
Stanley R. & L. Co.:
Boxwood 60¢
Ivory 35¢
Upson Nut Co.:
Boxwood 60¢
Ivory 35¢

Sash Balances—

See Balance, Sash.

Sash Locks—

See Locks, Sash.

Sash Weights—

See Weights, Sash.

Sausage Stuffers or Fillers

See Stuffers or Fillers, Sausage.

Saw Frames—

See Frames, Saw.

Saw Sets—

See Sets, Saw.

Saw Tools—

See Tools, Saw.

Saws—

Atkins':
Circular 50¢
Band 50¢
Cross Cuts 35¢
Mulay, Mill and Drag 50¢
One-Man Saw 40¢
Wood Saws 40¢
Hand, Compass, &c. 40¢
Chapin-Stephens Co.:
Turning Saws and Frames 30¢
Diamond Saw & Stamping Works:
Sterling Kitchen Saws 30¢
Disston's:
Circular, Solid and Ins'ted Tooth 50¢
Band, 2 to 14 in. wide 60¢
Band, ¼ to 1½ 50¢
Crosscuts 50¢
Narrow Crosscuts 55¢
Mulay, Mill and Drag 50¢
Framed Woodsaws 35¢
Woodsaw Blades 35¢
Woodsaw Rods 25¢
Hand Saws, Nos. 12, 29, 9, 16, 4100 25¢
D8, 120, 76, 17, 8 25¢
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 0, Combination 30¢
Compass, Key Hole, &c. 25¢
Butcher Saws and Blades 35¢
C. E. Jennings & Co.:
Back Saws 25¢
Butcher Saws 30¢
Compass and Key Hole Saws 35¢
Framed Wood Saws 20¢
Hand Saws 20¢
Wood Saw Blades 35¢
Millers Falls:
Butcher Saws 15¢
Star Saw Blades 15¢
Peace & Richardson's Hand Saws 30¢
Simonds':
Circular Saws 50¢
Crescent Ground Cross Cut Saws 30¢
One-Man Cross Cuts 40¢
Gang Mill, Mulay and Drag Saws 50¢
Band Saws 50¢
Back Saws 25¢
Butcher Saws 30¢
Hand Saws 25¢
Hand Saws, Bay State Brand 15¢
Compass, Key Hole, &c. 25¢
Wood Saws 35¢
Springfield Mach. Screw Co.:
Diamond Kitchen Saws 40¢
Butcher Saws 35¢
Wheeler, Madam & Clemson Mfg. Co.'s Cross Cut Saws 50¢

Hack Saws—

Atkins' Hack Saw Blades A A A 25¢
Disston's:
Concave Blades 25¢
Keystone 40¢
Hack Saw Frames 30¢
Fitchburg File Works, The Best 25¢
C. E. Jennings & Co.:
Hack Saw Frames, Nos. 175, 180, 4047½ 40¢
Hack Saws, Nos. 175, 180, complete, 4047½ 40¢
Goodell's Hack Saw Blades 40¢
Griffin's Hack Saw Frames 35¢
Griffin's Hack Saw Blades 35¢
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades 35¢
Diamond Hack Saw Frames 50¢
Star Hack Saws and Blades 15¢
Sterling Hack Saw Blades 35¢
Sterling Hack Saw Frames 30¢

Scroll—

Barnes' No. 1, 1½ 25¢
Barnes' No. 2, 1½ 40¢
Barnes' Velpede Power Scroll Saw, without boring attachment, 18½ 18½
Lester, complete, 10.00 15¢
Rogers, complete, 14.00 15¢

Scissors, Fish—

Saddlery Works 60¢

Scales—

Family, Turnbull's 50¢
Counter:
Hatch, Platform, ½ oz. to 4 lbs. 55¢
Two Platforms, ½ oz. to 8 lbs. 16.00
Union Platform, Plain 1.70
Union Platform, Stpd. 1.85
Chatillon's:
Eureka 25¢
Favorite 40¢
Crocers' Trip Scales 50¢
Chicago Scale Co.:
The "Little Detective" 25 lbs 50¢
Union or Family No. 2 60¢
Portable Platform (reduced list) 50¢
Wagon or Stock (reduced list) 25¢
"The Standard" Portables 50¢
"The Standard" R. R. and Wagon 50¢

Scrapers—

Box, 1 Handle 2.25
Box, 2 Handle 2.85
Ship, Light, 22.00; Heavy, 1.50
Adjustable Box Scraper (S. R. & L. Co.), 8.00 30¢
Chapin-Stephens Co., Box 50¢

Screens, Window and

Frames—
Flyer Pattern Screens 60¢
Maine Screen Frames 40¢
Perfection Screens 50¢
Phillips Screen Frames 60¢
See also Doors.

Screws—Bench and Hand

Bench, Iron, doz., 1 in. 2.50
2.75; 1½, 3.00; 3.25; 1¼, 3.50
Bench, W.D. Beech, doz. 30¢
Hand, Wood 30¢
R. Bliss Mfg. Co., Hand 30¢
Chapin-Stephens Co., Hand 30¢
Ohio Tool Co., Bench and Hand 30¢
Coach, Lag and Hand Rail—
Lag, Common Point, list Oct. 1, '99 80¢
Coach and Lag, Gilmot Point, list Oct. 1, '99 75¢
Hand Rail, list Jan. 1, '81 70¢

Jack Screws—

Standard List 75¢
Millers Falls 50¢
P. S. & W. 50¢
Sargent 70¢
Sweet Iron Works 75¢

Machine—

List Jan. 1, '98:
Flat or Round Head, Iron 50¢
Flat or Round Head, Brass 50¢

Set and Cap—

Set (Iron or Steel) 80¢
Sq. Hd. Cap 75¢
Hex. Hd. Cap 75¢
Rd. or Fillister Hd. Cap 65¢

Wood—

List July 23, 1903.
Manufacturers' printed discounts:
Flat Head, Iron 87½¢
Round Head, Iron 85¢
Flat Head, Brass 85¢
Round Head, Brass 80¢
Flat Head, Bronze 77½¢
Round Head, Bronze 75¢
Drive Screws 87½¢

Scroll Saws—

See Saws, Scroll.

Scythes—

Prices announced for next season:
Clipper Pattern, Grass 26.20
Full Polished, Clipper 26.75
Grain 33.00
Clipper, Grain 32.25
Weed and Bush 26.25

Seeders, Raisin—

Enterprise 25¢

Sets—

Brad Axl and Tool Sets:
Wood Handle, 10 Acls. 2.00
Wood Handle, 14 Acls. 2.50
Tools 2.50

Aiken's Sets, Axl and Tools:
No. 20, 3 doz. 10.00
Fray's Adj. Tool Handles, Nos. 1, 12; 2, 18; 3, 12; 4, 9; 5, 7 50¢
C. E. Jennings & Co.'s Model Tool Holders 30¢
Millers Falls Adj. Tool Handles, No. 1, 12; No. 4, 12; No. 5, 18 15¢
Stanley's Excelsior:
No. 1, 7.50; No. 2, 4.00; No. 3, 5.50 50¢

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel 20¢

Nail—

Square 2.25
Round, Blk. and Pol., assorted 1.80
Octagon 3.50
Buck Bros. 27½¢
Cannon's Diamond Point, 30 12.25
Mayhew's 30.00
Snell's Cannon's Diamond Point 30.00
Snell's Corrugated, Cup Pt. 30.00
Snell's Knurled, Cup Pt. 30.00
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt. 30.00

Rivet—

Regular list 75¢

Saw—

Aiken's:
Genuine 50¢
Imitation 50¢

Atkin's:
Criterion 40¢
Adjustable 40¢
Bemis & Call Co.'s:
Cross Cut 30¢
Disston's Star and March 25¢
Morrill's No. 1, 15.00 50¢
Nos. 3 and 4, Cross Cut, 20.63 50¢
Nos. 5, Mill, 30.00 50¢
Nos. 10, 11, 95, 15.63 50¢
No. 1 Old Style, 10.00 50¢
Special, 12.25 50¢
Giant Royal, Cross Cut 30¢
Royal, Hand 30¢
Taintor Positive 30¢

Shaving—

Fox Shaving Sets, No. 30 24.00

Sharpeners, Knife—

Chicago Wheel & Mfg. Co. 65¢

Shaves, Spoke—

Iron 1.00
Wood 1.75

Bailey's (Stanley R. & L. Co.) 30¢

Chapin-Stephens Co. 30¢

Goodell's, 3 doz. 15.00

Wood's F1 and F2 50¢

Shears—

Cost Iron, 7 8 9 in. 16.00 18.00 20.00

Good 13.00 15.00 17.00

Cheap 5.00 6.00 7.00

Straight Trimmers, &c.—

Best quality, Jap. 70¢

Best quality, Nickel 60¢

Fair quality, Jap. 80¢

Fair quality, Nickel 75¢

Tailors' Shears 40¢

Acme Cast Shears 40¢

Heinrich's Tailor's Shears 40¢

Wilkinson's Hedge, 1900 list 45¢

Wilkinson's Branch, Lawn & Border, 40 40¢

Wilkinson's Sheep, 1900 list 50¢

Tinners' Snips—

Steel Blades 20¢

Steel Laid Blades 40¢

Forged Handles, Steel Blades, Berlin, 40¢ 40¢

Heinrich's Snips 40¢

Jennings & Griffin Mfg. Co.'s, 6½ to 10 in. 50¢

Niagara Snips 40¢

P. S. & W. Co. 20¢

Pruning Shears and Tools

Cronk's Grape Shears 33½¢

Cronk's Pruning Shears 33½¢

Disston's Combined Pruning Hook and Saw, 3 doz. 15.00

Disston's Pruning Hook, 3 doz. 12.00

John T. Henry Mfg. Co.:
Pruning Shears, all grades, 40¢ 40¢

Orange Shears 50¢

Grape Shears 40¢

Tree Pruners 75¢

P. S. & W. Co. 33½¢

Sheaves—Sliding Door—

Stowell's Anti-Friction 50¢

Patent Roller, Hatfield's, Sargent's list 10.00

Reading 60¢

R. & E. list 33½¢

Wrightsville Hatfield Pattern 80¢

Sliding Shutter—

Reading list 45¢

R. & E. list 33½¢

Sargent's list 50¢

Shells—Shells, Empty—

Brass Shells, Empty:
First quality, all gauges 60¢

Climax, Club, Rival, 10 and 12 gauge 65¢

Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge 25¢

Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge 20¢

Climax, Union, League, New Rival, 10 and 12 gauge 25¢

Climax, Union, League, New Rival, 14, 16 and 20 gauge (\$7.50 list) 20¢

Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge 33½¢

Robin Hood, Low Brass 20¢

Robin Hood, High Brass 30¢

Shells, Loaded—

Loaded with Black Powder 40¢

Loaded with Smokeless Powder, medium grade 40¢

Loaded with Smokeless Powder, high grade 40¢

Robin Hood Smokeless Powder:
Robin Hood, Low Brass 50¢

Comets, High Brass 50¢

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:
Iron per keg \$4.00

Steel per keg \$3.75

Burdens, all sizes per keg \$3.90

Shot—

Drop, up to B, 25-lb. bag \$1.65

Drop, B and larger per 25-lb. bag, \$1.90

Buck, 25-lb. bag \$1.90

Chilled, 25-lb. bag \$1.90

Shovels and Spades—

Association List, Nov. 15, 1902. 40¢

Sieves and Sifters—

Hunter's Imitation gro. \$10.50

Hunter's Genuine per gro. \$12.00

Buffalo Metallic Blue, S. S. Co. per 14¢

14¢ 16¢ 18¢ 20¢

Shaker (Barley's Pat.) Flour Sifters, 3 doz. \$2.00

Sieves, Seamless Metallic—
Mesh 14 16 18 20
Iron Wire \$1.05 1.05 1.10 1.20
Tinned Wire \$1.15 1.15 1.20 1.30

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch. \$0.90

Mesh 18, Nested doz. \$1.00

Mesh 20, Nested doz. \$1.00

Mesh 24, Nested doz. \$1.30

Sinks, Cast Iron—

Standard list 60¢

NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—

Cast Iron 80¢

Steel 40¢

Slates, School—

Factory Shipments.
"D" Slates 50¢

Eureka, Unexcelled Noiseless 60¢

Victor A, Noiseless 60¢

Slaw Cutters—See Cutters.

Snaps, Harness—

German 40¢

Covert Mfg. Co.:
Derby 30¢

High Grade 35¢

Jockey 30¢

Trojan 45¢

Yankee 30¢

Yankee Roller 30¢

Covert's Saddlery Works:
Crown 60¢

German 60¢

Model 60¢

Triumph 60¢

Oneida Community:
Solid Swivel 60¢

Sargent's Patent Guarded 65¢

Snaths—

Scythe 45¢

Snips, Tanners—See Shears.

Spoons and Forks—

Silver Plated—

Good Quality 50¢

Cheap 60¢

International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton 40¢

Rogers & Bro., William Rogers' Eagle Brand 50¢

Anchor, Rogers Brand 60¢

Wm. Rogers & Son 60¢

Miscellaneous—

German Silver 60¢

Pike Mfg. Co., 1901 list:
Black Diamond S. S. 8. 1/2 gro. \$12.00
Lamolle S. S. 8. 1/2 gro. \$11.00
White Mountain S. S. 8. 1/2 gro. \$9.00
Green Mountain S. S. 8. 1/2 gro. \$9.00
Extra Indian Pond S. S. 8. 1/2 gro. \$7.50
No. 1 Indian Pond S. S. 8. 1/2 gro. \$7.00
No. 2 Indian Pond S. S. 8. 1/2 gro. \$4.50
Leader Red End S. S. 8. 1/2 gro. \$4.50
Emery and Corundum, 10 in. 1/2 gro. \$9.00
Pure Corundum, 10 in. 1/2 gro. \$12.00
Crescent 10 in. 1/2 gro. \$7.00
Emery Scythe Rifles, 2 Coat, \$8
Emery Scythe Rifles, 3 Coat, \$10
Emery Scythe Rifles, 4 Coat, \$12
Balance of 1904 list 33 1/2 %

Oil Stones, &c.—

Chicago Wheel & Mfg. Co., 1901 list:
Gem Corundum Oil, Double Grit, 50 %
Gem Corundum Oil, Single or
Double Grit, 50 %
Gem Corundum Razor Stones, 50 %
Pike Mfg. Co., 1901 list:
Arkansas St. No. 1, 3 to 5 in. \$2.80
Arkansas St. No. 1, 5 to 8 in. \$3.50
Arkansas Slips No. 1, 3 to 5 in. \$1.00
Lily White Washita, 4 to 8 in. \$6.00
Rosey Red Washita, 4 to 8 in. \$6.00
Washita St., Extra, 4 to 8 in. \$5.00
Washita St., No. 1, 4 to 8 in. \$4.00
Washita St., No. 2, 4 to 8 in. \$3.00
Lily White Slips, 4 to 8 in. \$9.00
Rosey Red Slips, 4 to 8 in. \$9.00
Washita Slips, Extra, 4 to 8 in. \$8.00
Washita Slips, No. 1, 4 to 8 in. \$7.00
Washita Slips, No. 2, 4 to 8 in. \$6.00
India Oil Stones (entire list), 33 1/2 %
Quickcut Emery and Corundum Oil
Stone, Double Grit, 33 1/2 %
Quickcut Emery and Corundum Oil
Stone, Double Grit, 33 1/2 %
Quickcut Emery Rubbing Bricks, 33 1/2 %
Hindostan No. 1, R. G. lar. 1/2 lb. 8c
Hindostan No. 1, Small, 1/2 lb. 10c
Axe Stones (all kinds), 33 1/2 %
Turkey Oil Stones, Extra, 5 to
8 in. 33 1/2 %
Queer Creek Stones, 4 to 8 in. 20c
Queer Creek Slips, 4 to 8 in. 20c
Sand Stone, 4 to 8 in. 6c
Belgian, German and Swaty Razor
Hones, 50 %
Natural Grit Carving Knife
Hones, 1/2 doz. \$3.00
Quick Edge Pocket Knife
Hones, 1/2 doz. \$2.50
Mounted Kitchen Sand Stone,
1/2 doz. \$1.50

Stoners, Cherry—

Enterprise Mfg. Co., 25 @ 30 %
Victor Bottle Stoppers, 1/2 gro. \$3.00

Stops—Bench—

Millers Falls, 15 @ 10 %
Morrill's, 1/2 doz. No. 1, \$10.00, 50 %
Morrill's, No. 2, \$12.50, 50 %

Door—

Chapin-Stephens Co., 60 @ 60 & 10 %

Plane—

Chapin-Stephens Co., 20 %

Straps—Box—

Cary's Universal, case lots, 20 @ 10 & 10 %

Hame—

Covert's Saddlery Works, 60 @ 10 %

Stretchers, Carpet—

Cast Iron, S. I. Points, doz. 55 @ 60 %
Rocket, 1/2 doz. \$1.75
Excelsior Stretcher and Tack Ham-
mer Combined, 1/2 doz. \$6.00, 20 %

Stuffers, Sausage—

Enterprise Mfg. Co., 25 @ 25 & 7 1/2 %
National Specialty Co., list Jan. 1,
1902, 30 @ 5 %

Sweepers, Carpet—

National Sweeper Co., 1/2 doz.
Auditorium, Roller Bearing (26 in.
case), Nickel, \$54.00
Mammoth, Roller Bearing (30 in.
case), Nickel, \$60.00
Marion, Roller Bearing, regular
finishes, full Nickel, \$24.00
Marion Queen, Roller Bearing, full
Nickel, \$24.00
Monarch, Roller Bearing, N. kel, \$22.00
Monarch, Roller B'rg, Jap. ned, \$20.00
Transparent, Roller Bearing, Plate
Glass Top, Nickel, \$36.00
Monarch Extra, Roller Bearing,
(17-in. case), Nickel, \$36.00
Monarch Extra, Roller Bearing,
(17-in. case), Japanned, \$33.00
National Queen, Fancy Veneers, \$27.00
Perpetual, Regular B'rgs, N. kel, \$30.00
Perpetual, Regular B'rgs, Jap, \$18.00

NOTE.—Rebates: 50c per dozen on
three-dozen lots; \$1 per dozen on five-
dozen lots; \$2 per dozen on ten-dozen lots;
\$2.50 per dozen on twenty-five-dozen lots

Tacks, Brads, &c.—

List Jan. 15, '99.
Carpet Tacks, 90 @ 30 & 10 @ 10 %
American Cut Tacks, 90 @ 25 @
Swedes Cut Tacks, 90 @ 30 & 10 @ 10 %
Swedes Upholsterers' Tacks, 90 @ 15 @ 10 @ 10 %
Gimp Tacks, 90 @ 15 @ 10 @ 10 %
Lace Tacks, 90 @ 15 @ 10 @ 10 %
Trimmers' Tacks, 90 @ 30 & 10 @ 10 %
Looking Glass Tacks, 70 @ 10 @ 10 %
Bill Posters' and Railroad
Tacks, 90 @ 15 @ 10 @ 10 %
Hungarian Nails, 80 @ 30 & 10 @ 10 %
Common and Patent Brads, 80 @ 10 @ 10 %
Trunk and Clout Nails, 80 @ 10 @ 10 %
NOTE.—The above prices are for
Straight Weights. An extra 5 % is given
on Star Weights and an extra 10 % on
Standard Weights.

Miscellaneous—

Double Pointed Tacks, 90 @ 6 or 7 ctns
Steel Wire Brads, R. & E. Mfg. Co.'s
list, 50 @ 10 @ 60 %
See also Nails, Wire.

Tanks, Oil—

Each.
Emerald, S. S. & Co., 30-gal. \$3.40
Emerald, S. S. & Co., 60-gal. \$4.25
Queen City, S. S. & Co., 30-gal. \$3.65
Queen City, S. S. & Co., 60-gal. \$4.50

Tapes, Measuring—

American Asses' Skin, 40 @ 10 @ 15 %
Patent Leather, 25 @ 30 @ 5 %
Steel, 40 @ 10 @ 10 %
Chesterman's, 25 @ 25 @ 5 %
Eddy Asses' Skin, 40 @ 10 @ 60 %
Eddy Patent Leather, 25 @ 30 @ 5 %
Eddy Steel, 40 @ 40 @ 10 %
Keuffel & Esser Co.,
Favorite, Ass Skin, 40 @ 10 @ 50 %
Favorite, Duck and Leather, 25 @ 5 @ 10 %
Metallic and Steel, lower list, 35 @ 35 @ 5 %
Pocket, 35 @ 35 @ 5 %
Lufkin's Steel, 33 @ 35 @ 5 %
Lufkin's Metallic, 30 @ 30 @ 5 %

Teeth, Harrow—

Steel Harrow Teeth, plain or
headed, 1/2-inch and larger, 100
per 100 lbs. \$3.00

Thermometers—

Tin Case, 80 @ 10 @ 80 @ 10 & 5 %

Ties, Bale—Steel Wire—

Single Loop, 80 @ 2 1/2 %
Monitor, Cross Head, etc., 70 %

Brick Ties—

Niagara Brick Ties, 25 @ 10 %

Tinners' Shears, &c.—

See Shears, Tinners', &c.

Tinware—

Stamped, Japanned and Pieced, sold
very generally at net prices.

Tips, Safety Pole—

Covert's Saddlery Works, 60 @ 10 %

Tire Benders, Upsetters, &c.

See Benders and Upsetters, Tire.

Tools—Coopers'—

L. & I. J. White, 20 @ 20 & 5 %

Hay—

Myers' Hay Tools, 50 %
Stowell's Hay Carriers, 50 %
Stowell's Hay Forks, 50 %
Stowell's Fork Pulleys, 50 %

Saw—

Atkins' Cross Cut Saw Tools, 40 %
Simonds' Improved, 33 1/2 %
Simonds' Crescent, 25 %

Ship—

L. & I. J. White, 25 %

Transom Lifters—

See Lifters, Transom.

Traps—Fly—

Balloon, Globe or Acme, doz.
\$1.15 @ \$1.25; gro. \$11.50 @ 12.00
Harper, Champion or Paragon,
doz. \$1.25 @ 1.40; gro. \$13.00 @ 13.50

Game—

Oncida Pattern, 75 @ 10 @ 75 @ 10 & 5 %
Newhouse, 45 @ 45 & 5 %
Hawley & Norton, 65 @ 65 & 5 %
Victor (Oncida Pattern), 75 @ 75 & 5 %
O. C. Jump (Blake Pat.), 60 @ 50 @ 10 %

Mouse and Rat—

Mouse, Wood, Choker, doz. holes
8 1/2 @ 9c
Mouse, Round or Square Wire,
doz. 85 @ 90c
Marty French Rat and Mouse Traps
(Genuine):
No. 1, Rat, each \$1.12; 1/2 doz. \$12.00
No. 3, Rat, 1/2 doz. \$6.00; case of 50,
\$5.25 doz.
No. 3 1/2, Rat, 1/2 doz. \$4.75; case of 72,
1/2 gro. \$4.80
No. 4, Mouse, 1/2 doz. \$3.50; case of 72,
\$2.75 doz.
No. 5, Mouse, 1/2 doz. \$2.75; case of 150,
\$2.25 doz.

Trimmers, Spoke—

Wood's E. I., 50 %

Trowels—

Diaston Brick and Pointing, 30 %
Diaston Plastering, 25 %
Diaston "Standard Brand" and Gar-
den Trowels, 35 %
Kohler's Steel Garden Trowels, 5 in.,
1/2 gro. \$4.80
Kohler's Steel Garden Trowels, 6 in.,
1/2 gro. \$6.00
Never-Break Steel Garden
Trowels, 1/2 gro. \$6.00
Rose Brick and Plastering, 25 @ 5 %
Woodrough & McParlin, Plastering, 25 %

Trucks, Warehouse, &c.—

R. & L. Block Co.:
New York Pattern, 50 @ 10 %
Western Pattern, 60 @ 10 %
Handy Trucks, 1/2 doz. \$16.00
Grocery, 1/2 doz. \$15.00
Day Stone Trucks, Improved Pat-
tern, 1/2 doz. \$18.50
McKinney Trucks, each \$10.00
Model Store Trucks, 1/2 doz. \$18.50

Tubs, Wash—

Galvanized, per doz. \$4.75 5.25 6.00
Galvanized Wash Tubs (S. S. & Co.):
No. 1, 2 3 10 20 30
Per doz., net \$5.79 6.30 7.20 6.60 7.20 8.10

Twine, Miscellaneous—

Flax Twine:
No. 9, 1/4 and 1/2 lb. Balls, 22 @ 24c
No. 12, 1/4 and 1/2 lb. Balls, 18 @ 20c
No. 18, 1/4 and 1/2 lb. Balls, 16 @ 18c
No. 24, 1/4 and 1/2 lb. Balls, 16 @ 18c
No. 36, 1/4 and 1/2 lb. Balls, 15 @ 17c
Chalk Line, Cotton 1/2 lb.,
Balls, 30c
Cotton Mops, 6, 9, 12 and 15 lb.,
to doz., 3.90 @ 11c
Cotton Wrapping, 5 Balls to lb.,
according to quality, 13 1/2 @ 20c
American 2-Ply Hemp, 1/4 and
1/2 lb. Balls, 13 @ 14c
American 3-Ply Hemp, 1 lb.
Balls, 13 @ 14c

India 2-Ply Hemp, 1/4 and 1/2 lb.
Balls (Spring Twine), 8c
India 3-Ply Hemp, 1 lb. Balls, 7 @ 8c

India 3-Ply Hemp, 1 1/2 lb. Balls, 6 @ 7c
2, 3, 4 and 5-Ply Jute, 1/2 lb.
Balls, 9 @ 10c
Mason Line, Linen, 1/2 lb. Bis, 46c
No. 26 1/2 Mattress, 1/4 and 1/2 lb.
Balls, 37c
Wool, 3 to 6 ply, 5 1/2 @ 6c

Vises—
Solid Box, 50 @ 10 @ 60 %

Parallel—
Athol Machine Co.:
Simpson's Adjustable, 40 %
Standard, 40 %
Amateur, 25 %
Columbian Hdw. Co., 20 %
Emmert Universal:
Pattern Makers' No. 1, \$15.00; No. 2,
\$12.50; No. 3, \$10.00.
Machinist and Tool Makers' No. 4,
\$12.50; No. 5, \$7.00; No. 6, \$10.00.
No. 10, \$21.50.
Jewelers' No. 1, \$4.00
Fisher & Norris Double Screw, 15 @ 10 %
Hollands':
Machinists', 40 @ 40 & 5 %
Keystone, 65 @ 5 @ 70 %
Lewis Tool Co., 20 @ 30 %
Rearing's, 20 @ 30 %
Millers Falls, 60 @ 10 %
Massey Vise Co.:
Climber, 40 %
Perfect, 20 %
Lightning Grip, 20 %
Parker's:
Victor, 20 @ 25 %
Regulars, 20 @ 25 %
Vulcan, 40 @ 45 %
Combination Pipe, 55 @ 60 %
Prentiss, 20 @ 25 %
Sargent's, 40 %
Smith & Hemenway Co.:
Machinists', 33 1/2 %
Jewelers', 33 1/2 %
Snediker's X. L., 33 1/2 %
Stephens', 33 1/2 %

Saw Filers—
Diaston's D 3 Clamp and Guide, 1/2
doz. \$30.
Perfection Saw Clamps, 1/2 doz. \$5.00
Rearing's Rubber Jaw, Nos. 1,
2 and 3, 45 @ 50 %

Wood Workers—
Massey Vise Co.:
Lightning Grip, 15 %
Perfect, 15 %
Wyman & Gordon's Quick Action, 6
in., \$6.00; 9 in., \$7.00; 14 in., \$8.00.

Miscellaneous—
Bignall & Keeler Combination Pipe
Vise, 60 @ 10 %
Holland's Combination Pipe, 60 @ 10 %
Massey's Quick Action Pipe, 40 %
Parker's Combination Pipe, 60 %
7 Series, 60 %
187 Series, 60 @ 5 %
No. 870, 40 %

Wads—Price per M.
B. E., 11 up, 60c
H. E., 9 and 10, 70c
B. E., 8, 80c
B. E., 7, 80c
P. E., 11 up, \$1.00
P. E., 9 and 10, 1.25
P. E., 8, 1.50
P. E., 7, 1.50
Ely's B. E., 11 and larger, \$1.70 @ 1.75
Ely's P. E., 12 to 20, \$3.00 @ 3.25

Ware, Hollow—
Cast Iron, Hollow—
Store Hollow Ware:
Enameled, 55 @ 10 @ 60 %
Ground, 60 @ 10 @ 65 %
Plain or Unground, 65 @ 10 @ 70 %
Country Hollow Ware, per 100
lbs., \$2.50
White Enameled Ware:
Maslin Kettles, 70 %
Covered Wares, 50 %
Tinned and Turned, 40 %
Enameled, 50 %
See also Pots, Glue.

Enameled—
Agate Nickel Steel Ware, 50 @ 20 %
Agate Nickel Steel Ware, Specials, 60 @ 15 %
Iron Clad Ware, 70 @ 10 %
Lava, Enameled, 40 @ 10 %
Never Break Enameled, 50 %

Tea Kettles—
Galvanized Tea Kettles:
Inch, 6 7 8 9
Each, 45c 50c 55c 65c

Steel Hollow Ware—
Avery Spiders and Griddles, 65 @ 65 & 5 %
Avery Kettles, 60 %
Porcelain, 50 @ 50 & 10 %
Never Break Spiders and Griddles, 65 @ 5 %
Never Break Kettles, 60 %
Solid Steel Spiders and Griddles, 65 @ 5 %
Solid Steel Kettles, 60 %

Warmers, Foot—
Pike Mfg. Co., Soapstone, 40 @ 40 & 10 %

Washboards—
Solid Zinc:
Crescent, family size, bent frame, \$3.00
Red Star, family size, stationary
protector, \$3.00
Double Zinc Surface:
Saginaw Globe, family size, station-
ary protector, \$2.65
Cable Cross, family size, station-
ary protector, \$2.90
Single Zinc Surface:
Nalad, family size, open back,
perforated, \$2.40
Saginaw Globe, protector, family
size, ventilated back, \$2.25
Brass Surface:
Pruss King, Single Surface, open
back, \$3.00

Nickel Plate Surface:
No. 1001 Nickel Plate, Single Sur-
face, \$3.00
Glass Surface:
Glass King, Single Surface, open
back, \$3.00
Enamel Surface:
Enamel King, Single Surface, venti-
lated back, \$3.00

Washers—Leather, Axle—
Solid, 80 @ 10 @ 80 @ 10 & 10 %
Patent, 90 @ 90 @ 5 %
Coil, 7 1/2 1 1/4 1 1/4 1 1/4
10c 11c 12c 13c per box

Iron or Steel—
Size bolt, 5-16 3/8 1/2 5/8 3/4
Washers, \$5.00 4.10 2.80 2.60 2.40
In lots less than one key add
1/2 ct. per lb.; 5-lb. boxes add 1/2 ct.
to list.

Cast Washers—
Over 1/2 inch, barrel lots, 1/2
per lb. 1/4 @ 2c

Wedges—
Oil Finish, 1 lb., 2.15 @ 2.30c

Weights—Hitching—
Covert Mfg. Co., 40 @ 2 %
Covert's Saddlery Works, 60 @ 10 %

Sash—
Per ton, f.o.b. factory:
Eastern District, \$22.50 @ 24.00
Southern Territory, \$18.00 @ 19.99
Western and Central Dis-
tricts market unsettled,
prices ranging from
\$17.50 @ 19.00

Wheels, Well—
8-in., \$1.50 @ 1.55; 10-in., \$1.65 @
1.70; 12-in., \$2.25 @ 2.35; 14-in.,
\$3.40 @ 3.50.

Wire and Wire Goods—
Bright and Annealed:
6 to 9, 80 @ 5 @ 80 @ 7 1/2 %
10 to 18, 80 @ 80 @ 5 %
19 to 26, 80 @ 10 @ 80 @ 10 & 5 %
27 to 36, 80 @ 5 @ 80 @ 10 %
Galvanized:
6 to 9, 77 1/2 @ 77 1/2 @ 5 %
10 to 11, 72 1/2 @ 72 1/2 @ 5 %
15 to 16, 75 @ 75 @ 5 %
19 to 26, 75 @ 5 @ 75 @ 10 %
27 to 36, 72 1/2 @ 72 1/2 @ 7 1/2 %

Coppered:
6 to 9, 77 1/2 @ 77 1/2 @ 5 %
10 to 11, 77 1/2 @ 77 1/2 @ 7 1/2 %
15 to 18, 75 @ 10 @ 75 @ 10 & 5 %
19 to 26, 75 @ 10 @ 75 @ 10 %
27 to 36, 72 1/2 @ 72 1/2 @ 7 1/2 %

Tinned:
6 to 11, 77 1/2 @ 77 1/2 @ 7 1/2 %
15 to 18, 75 @ 5 @ 75 @ 10 %
Annealed, Steel and Tinned, on
Spools, 70 @ 10 @ 10 @ 70 @ 10 @ 10 %
Brass and Copper on Spools,
60 @ 10 @ 60 @ 10 @ 10 %

Brass, list Feb. 26, '96, 30 @ 5 %
Copper, list Feb. 26, '96, 15 %
Cast Steel Wire, 50 %
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—
List June 24, 1903, 90 @ 10 @ 10 @ 10 %

Wire Cloth and Netting—
Galvanized Wire Netting, 80 @ 10 @ 80 @ 10 & 5 %

Painted Screen Cloth, 100 ft., \$1.10
Standard Galv. Hardware Grade:
Nos. 2, 2 1/2 & 3 Mesh, sq. ft. 3c
Nos. 4 and 5 Mesh, sq. ft. 3 1/2c
No. 6 Mesh, sq. ft. 3 1/2c
No. 8 Mesh, sq. ft. 4c

Wire, Barb—See Trade Report

Wrenches—
Agricultural, 75 @ 10 @ 75 @ 10 @ 10 %
Alligator or Crocodile, 70 @ 10 @ 75 %
Baster Pattern S Wrenches,
70 @ 5 @ 70 @ 10 %

Drop Forged S, 45 @ 45 @ 5 %
Acme, 60 @ 10 %
Alligator Pattern, 70 %
Bull Dog, 70 %
Bemis & Call's:
Adjustable S Pipe, 40 %
Bemis Pipe, 60 %
Brigg's Pattern, 40 %
Combination Black, 40 @ 5 %
Combination Bright, 40 %
Merrick's Pattern, 40 %
Boardman's, 33 1/2 %
Coe's Genuine Knife Hdl., 40 @ 10 @ 45 @ 5 %
Coe's Genuine Steel Hdl., 40 @ 10 @ 45 @ 5 %
Coe's Genuine Key Model, 40 @ 10 @ 45 @ 5 %
Coe's "Mechanics", 40 @ 10 @ 45 @ 5 %
Donohue's Engineer, 40 @ 10 %
Eagle, 50 @ 10 %
Elgin Wrenches, 40 %
Elgin Monkey Wrench Pipe Jaws, 33 1/2 %
Gem Pocket, 30 %
Hercules, 70 %
W. & B. Machinist:
Case lots, 50 @ 5 %
Less than case lots, 50 %
Improved Pipe (W. & B.), 60 %
Solid Handles, P. S. & W., 50 @ 60 @ 5 %
Stillson, 65 %
Vulcan Chain, 50 %

Wrought Goods—
Staples, Hooks, etc., list March
17, '92, 90 @ 90 @ 10 %

Yokes, Neck—
Covert Saddlery Works, Trimmed, 70 %
Covert Saddlery Works, Neck Yoke
Centers, 70 %

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers' & Freight-
ers', list net

Zinc—
Sheet, per 100 lbs., \$8.75 @ 1.00